5.0 CONCEPT PLAN ACTION STEPS

5.1 PLAN THEMES

Throughout the RTAP planning process, GRTA has listened to the public, business leaders and elected officials throughout the Atlanta region about their ideas and concerns about the role of public transit in solving the region's air quality and traffic congestion problems. These ideas and concerns were voiced by participants at GRTA's Regional Transit Forum (May 2002), by attendees of the Phase I and II Open Houses hosted by GRTA and ARC, and by the RTAP Project Advisory Committee. GRTA has listened carefully to these many voices and has crafted the following "themes" to help guide the Draft Concept Plan.

Provide More and Better Transit Choices. Most residents of the 13-county Atlanta non-attainment area have limited transportation choices available to them. Most residents of Fulton and DeKalb counties have a wide range of transit choices provided by the Metropolitan Atlanta Rapid Transit Authority. Meanwhile, some residents of Cobb, Gwinnett and Clayton counties also have limited transit service available, while residents of other suburban counties have access to virtually no transit service at all. Altogether, less than half of the region's 3.7 million residents have access to *any* transit service, leaving the majority of Atlanta residents totally dependent on their automobiles for travel to work, shop, or school. If the Atlanta region is to overcome its air quality and traffic congestion problems, then *more and better transit choices* must be provided. The RTAP, and specifically this Draft Concept Plan, will outline actions that will expand transit services to suburban counties that now have little or no transit service and provide faster, more convenient transit services in areas now served by transit.

Enhance the Customer Experience. In order to mitigate the Atlanta region's air quality and traffic congestion problems, public transit services will need to attract a large number of new riders – people who now travel exclusively using their automobiles. The automobile has many desirable qualities – it is convenient, dependable, and offers an unparalleled level of personal freedom to drivers. It is also perceived by many – rightly or wrongly – as being faster, safer and cheaper than transit choices. In order to be a viable alternative to the automobile, transit needs to match these qualities and counter these perceptions. In short, the way in which transit services are designed, operated, priced and marketed needs to be reassessed so as to *enhance the customer experience* and be attractive to potential new riders. This means making transit information easier to access and understand; designing transit systems that are readily accessible; operating transit services that are fast, reliable and convenient; and providing a more secure environment for passengers. A primary focus of this Draft Concept Plan is to identify transit projects, services and policies that enhance the customer experience.

Develop an Integrated System. The Atlanta non-attainment area comprises 13 counties, 80 municipalities, and multiple transit agencies (e.g., MARTA, Cobb Community Transit, Gwinnett County Transit and C-TRAN). So far, these transit agencies have crafted working agreements that allow for some coordination of transit services, joint use of some facilities, and passenger transfers between systems. But, as the region grows and travel patterns become more disperse, these working agreements will

become less and less effective. There is a clear and compelling need to provide a fully integrated transit system for the entire Atlanta region – one that allows for fully coordinated schedules, services that operate across political borders, as well as a fare policy and fare collection system that does not penalize either passengers or transit agencies for multi-agency trips.

Invest Wisely, Optimize Value. The RTAP identified and evaluated a wide range of potential transit projects representing high, medium and low capacity transit elements. Some of these individual projects and systems would be very costly to implement and operate; others would be relatively inexpensive but may be less effective. Is it effective to provide a full array of transit choices to *all* Atlanta residents? Certainly not. The funding resources available for transit improvements are limited. Therefore, this Draft Concept Plan was designed to tailor transit projects and services to the communities in which they serve. Some high and medium capacity projects may be applicable in a select number of congested corridors. But most of the Atlanta region would be best served by less costly and less intensive transit services such as local and express bus service, improved information systems, and more modest investments that are targeted to improving travel times and the quality of service in congested corridors.

Plan for the Future, Begin Today. The Draft Concept Plan is intended to establish a course of action for a 30-year planning horizon. A long-range perspective is necessary because the creation of Atlanta's air quality and traffic woes has been the product of decades of development and transportation decisions, or lack thereof, and the mitigation of these conditions will certainly take even more decades. However, the urgency of these problems makes it necessary for the Draft Concept Plan to identify and focus on those transit improvements that can be implemented quickly and can have an immediate impact on travel choices and behavior. As a result, many of the key elements of the Draft Concept Plan are intended to be implemented within the next five years – most notably the start-up of GRTA's Regional Express Bus System and implementation of several key bus rapid transit projects in highly congested corridors.

5.2 CONCEPT PLAN OVERVIEW

There is no single solution to the Atlanta region's traffic and air quality problems. These problems have been created by more than 30 years of unprecedented growth in population and employment that has not been matched by investments in the transportation system. A comprehensive solution to these problems must include additional highway and transit investments, together with smarter land use policies and plans. The transit element of the overall transportation and land use solution should comprise an array of transportation choices that are each effective in addressing particular aspects of the region's transportation needs. For example, MARTA's rail system is very effective for carrying large numbers of passengers in heavily traveled corridors, but other corridors may be better served by bus rapid transit, express buses, local bus routes, vanpools or transportation demand management (TDM) policies.

An outcome of the Transit Needs Assessment (Chapter 3) and sketch planning model analyses (Chapter 4) was the development of a multi-faceted, comprehensive and integrated system of transit projects, services and policies that offer a wide range of transportation choices to the Atlanta region that can be implemented incrementally (to address both immediate and future needs) and are sound investments that maximize value of existing resources.

The Atlanta region already benefits from an extensive bus and rail system operated by MARTA in Fulton and DeKalb counties and small but effective suburban transit systems operated by Cobb

Community Transit (CCT), Gwinnett County Transit (GCT) and Clayton County (C-TRAN). Future solutions to our air quality and traffic problems must build on these resources.

The Draft Concept Plan is an outcome of a rigorous process of soliciting public input, identifying transit needs and evaluating potential projects and services. While it is based on extensive public input and sound technical analyses, it is not the final answer. In the coming months, the Draft Concept Plan will be further tested and refined, resulting in the final Regional Transit Action Plan (refer to Chapter 6 Next Steps). While the Draft Concept Plan does specify individual projects, corridors, modes and services, it does not supersede more detailed corridor-level analyses. These corridor-level alternatives analyses will provide more detailed estimates of costs and benefits and may conclude that different corridors or technologies are preferred. Nevertheless, the Draft Concept Plan provides a solid foundation upon which corridor-level projects can be integrated into a seamless, integrated regional transit system that will be an effective part of the solution to the Atlanta region's air quality and traffic congestion problems.

The Draft Concept Plan is described below as a series of Action Steps that, together, form an integrated and comprehensive approach to improving transportation choices in the Atlanta region. The following sections present a brief overview of the action steps and a summary of projected benefits and costs of the Draft Concept Plan. Next, Section 5.3 presents a more detailed look of each action step.

- ✓ ***Preserve and Maintain Existing Transit Services and Infrastructure.*** The first action step is to ensure that the existing transit facilities and services operated by MARTA, CCT, GCT and C-TRAN are preserved and maintained. MARTA and the three suburban county transit systems have made significant and ongoing investments in both the services that they operate as well as in the infrastructure that supports those services. These services and facilities are the foundation upon which additional, future transit improvements can be made. The Draft Concept Plan features a 25 percent increase in MARTA bus and rail service hours consistent with the project population growth in Fulton and DeKalb counties. In addition, the Draft Concept Plan includes $200 million per year for infrastructure improvements.

- ✓ ***Expand Local Bus Service.*** The second step of the Draft Concept Plan is the expansion of bus transit service in areas of the region that are presently not served by transit or are underserved. Local fixed-route service (along with supplemental ADA paratransit service) is currently provided in only five of the 13 counties: Fulton, DeKalb, Cobb, Clayton, and Gwinnett. Even in these five counties, transit service is limited to the more densely developed areas. As the region continues to grow, additional areas will be able to support regular bus service.

  This element of the Draft Concept Plan would add new bus service in the eight counties that do not have service today, as well as fill in gaps in service in the five counties where transit service is now operated. The plan includes a total of 120 new routes that would serve all 13 counties in the region. The bus service plan was based on a thorough review of current operations, proposed short-range and long-range transit plans, current and projected population trends, the Transit Needs Assessment and field surveys. The proposed expansion of local bus service would require about 1,130 more buses and would add about 3.0 million more annual bus-hours of service. The expanded service would generate more than 237,000 new daily transit trips.

- ✓ ***Implement Regional Express Bus System.*** GRTA has planned and will implement a regional express bus system throughout the 13-county non-attainment area. The express bus plan is designed to improve mobility by providing fast transit connections between suburban counties and major employment centers (e.g., downtown and midtown Atlanta, Cumberland, Hartsfield Airport). The commute bus trips (i.e., from suburban counties to major employment centers) would be complemented with reverse-commute service from Atlanta and/or a MARTA rail station to suburban employment centers.

  GRTA's Regional Express Bus Plan consists of 37 routes that would be fully implemented by 2010. Twenty-six routes would be implemented in the first three years with funding provided by eleven of the 13 metro counties under an innovative funding concept whereby the counties pay the bus operating subsidy and GRTA provides bond funds for road improvements in each county.

- ✓ ***Bus Rapid Transit***. Bus Rapid Transit (BRT) refers to a family of physical and operational improvements that are designed to reduce travel times for buses in traffic and enhance the customer experience through improved service levels, convenient and accessible stations, more reliable service, and better passenger information systems and marketing.

  BRT is particularly compatible with the low-density suburban land uses and offers the opportunity to establish rapid transit in places that may not justify the cost of rail transit. BRT provides unlimited flexibility to tailor the public transport operation to suit the corridor and regional needs.

  A central concept in BRT planning is to provide high-speed bus service on exclusive rights-of-way such as busways and exclusive or high occupancy vehicle (HOV) lanes on expressways. A key element of the BRT plan is the implementation of HOV lanes on all major expressways in the Atlanta area. During the initial stage of the BRT program, express buses will operate on the HOV lanes with intermediate stops located at key transfer points. In some corridors, exclusive two-lane busways can be constructed alongside the expressway HOV lanes (e.g., I-75 North). Once on the busway/ BRT system, passengers would be able to connect to other bus routes that operate throughout the region.

  Seven high-speed BRT corridors have been proposed. These seven corridors include about 139 route-miles of exclusive high-speed BRT busways:

  - GA 400 from I-285 or MARTA's North Springs Station to Forsyth County
  - I-20 West from downtown Atlanta or MARTA's H.E. Holmes Station to Douglas County
  - I-20 East from downtown Atlanta or MARTA's Indian Creek Station to Rockdale County
  - I-285 from I-75/Cumberland to I-20 East
  - I-85 North from MARTA's Lindbergh or Doraville stations to the Mall of Georgia
  - I-75 North from downtown Atlanta or MARTA's Arts Center Station to Cherokee County
  - I-75 South from downtown Atlanta to McDonough

  Another form of BRT is to designate bus-only lanes on arterial streets. With adequate enforcement of violations, bus-only

lanes can greatly speed transit operations by separating buses from adjacent auto traffic.

The Draft Concept Plan has identified a number of potential corridors for bus-only lanes or other preferential treatment on arterial streets. Together with the high-speed BRT busways, described above, these arterial BRT projects would form an integrated bus network that would provide a high quality transit service at a fraction of the cost needed to build more expensive rail transit facilities.

Eighteen promising arterial BRT projects have been proposed. These include several corridors where extensive bus service is already operated, as well as a few new corridors where a high quality transit service could generate new trips. The 18 arterial BRT projects, which encompass about 261 route-miles, include:

- Buford Highway from Pleasant Hill Road to MARTA's Lindbergh Station
- Clairmont Road/C-Loop Corridor from MARTA's Decatur Station to MARTA's Lindbergh Station
- Campbellton Road from Camp Creek Parkway to MARTA's Oakland City Station
- Camp Creek Parkway/Thornton Road from I-85 South to I-20 West
- Candler Road from Decatur to I-285
- Downtown/Atlantic Station connecting MARTA's Five Points or Omni Stations with Centennial Park, Georgia Tech, and the new Atlantic Station
- Fulton Industrial Boulevard from Campbellton Road to I-20 West
- Johnson Ferry Road/Abernathy Road from SR 120 Roswell Road to MARTA's Sandy Springs Station
- LaVista Road/Lawrenceville Highway from MARTA's Lindbergh Station to Jimmy Carter Boulevard
- Memorial Drive from Stone Mountain to MARTA's Garnett Station
- Moreland Avenue/Briarcliff Road from I-285 South to North Druid Hills Road
- Peachtree Road/Peachtree Street from Chamblee to downtown Atlanta
- Piedmont Road/Roswell Road from Alpharetta to MARTA's Lindbergh Station
- Scott Boulevard/Ponce de Leon Avenue from North Druid Hills Road to MARTA's North Avenue Station
- SR 92/SR 140 from I-75 North to Stone Mountain
- SR 120/State Bridge Road/Pleasant Hill Road/ Satellite Boulevard/Duluth Highway from Marietta to Lawrenceville
- Tara Boulevard from I-75 South to Lovejoy
- US 78/Stone Mountain Freeway from Rockbridge Road to Snellville

✓ ***Customer-Oriented Services and Facilities***. Attracting new transit riders can be a daunting challenge in an area where many residents have grown accustomed to use of their private autos and few or no other transportation choices are readily available. GRTA recognizes that it is not sufficient to simply implement new travel choices; these new choices must be designed to be safe, attractive, convenient, easy to use and, most of all, satisfy the travel needs of Atlanta's residents and workers.

A renewed focus on customer-oriented transit is essential if public transit is to gain market share and help to alleviate Atlanta's air quality and traffic congestion problems. Some key aspects of this customer-oriented approach are: (1)

implement transit fares and fare policies that are easy to use and understand, promote seamless travel throughout the region, and provide a good value to customers while maintaining an acceptable farebox recovery ratio; (2) provide customer amenities such as sidewalks, crosswalks, bus shelters, benches and lighting to enhance the safety, convenience and attractiveness of the transit system; and (3) make transit information readily available to all residents of Metropolitan Atlanta through a regional travel information center that is accessible by telephone and websites.

- ✓ ***Transit Oriented Development***. In order for transit to be successful, land use planning and design must be coordinated with the provision of transit facilities and services. Local municipalities as well as private developers, landowners, and communities all play a role in ensuring that land use decisions are coordinated with transit investments. Historically, most municipal and county plans allow for and, in fact, encourage low density, auto dominated development patterns that are not conducive to transit. The result, too often, is low density, dispersed and poorly connected communities.

  The success of GRTA's Draft Concept Plan is dependent on the participation of municipalities and counties to guide private development in a manner more conducive to creating strong transit markets. The development patterns envisioned (e.g., mixed use development, compact urban growth, infill development, activity center development) will require changes in zoning codes, land development codes, development approval processes, subdivision ordinances and comprehensive plan policies. GRTA proposes to partner with the Atlanta Regional Commission and local and county jurisdictions to develop model transportation, land use and land development policies that can guide future development in support of the Regional Development Plan (RDP).

- ✓ ***Transit Planning and Implementation Tools***. One of GRTA's primary functions as the region's "umbrella" transit agency is the provision of technical support for each of the counties and/ or transit agencies in the region. GRTA staff can provide the technical expertise available to support and coordinate technical work activities conducted by each of the counties and/ or transit agencies. As a technical support resource, GRTA can help local counties and/ or transit agencies reduce their administrative and overhead costs. At the same time, GRTA will be providing continuity and coordination among the agencies that will lead to greater cost efficiencies and better service integration.

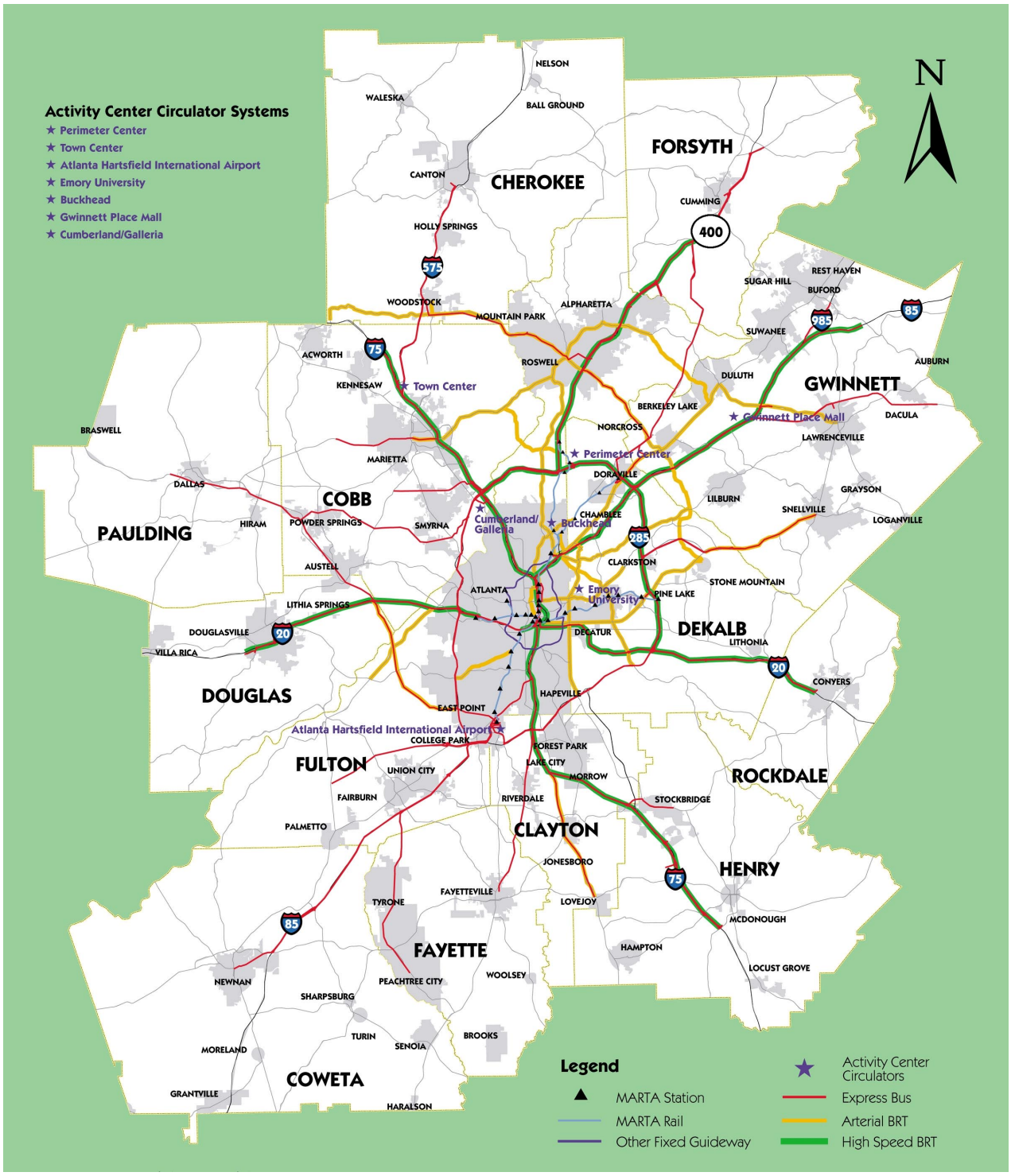
  Another important function of GRTA is oversight and monitoring of transit activities by local jurisdictions and transit agencies. This oversight function is essential if the services and policies of each transit agency are to be woven into a seamless, integrated regional transit system. Oversight and monitoring functions include reporting requirements, fare policy, service levels, coordination of service, performance standards and transit development plans.

- ✓ ***Travel Demand Management***. GRTA will work with its local planning partners – such as the Atlanta Regional Commission, the Clean Air Campaign and various transportation management associations – to implement and expand travel demand management strategies that are designed to make the existing transportation system more efficient. TDM strategies include telecommuting, variable work hour programs (e.g., flex-time), vanpool and ridesharing programs, private transit shuttles, employer incentives and/or subsidies for alternative transportation modes, and public awareness and marketing campaigns.

Figure 5-1 presents a schematic map of the proposed Draft Concept Plan.

Figure 5-1

Draft Concept Plan



5.2.1 Concept Plan Benefits

What will be the benefits of GRTA's Draft Concept Plan? Metropolitan Atlanta area residents will have more travel choices available to them and will have access to more job opportunities; traffic congestion will be alleviated in major corridors; the region's air quality will improve; the region will continue to grow in a way that preserves the quality of life to which we have become accustomed; and the region's economy will continue to expand and diversify.

The simplest and most direct measure of the plan's effectiveness will be the number of transit trips made by area residents. A sketch planning model, developed specifically for the Regional Transit Action Plan project, was used to test potential transit ridership for a variety of transit projects, services and scenarios. The model was developed using 2025 demographic projections and person trip tables from the Atlanta Regional Commission's regional travel demand model. However, the mode choice component of the sketch planning model was developed specifically for the RTAP project. The principal advantages of the sketch planning model were: (1) its ability to test a large number of potential projects and scenarios quickly and (2) a "fresh look" at transit mode choice, particularly as it is applied in less dense, suburban communities.

The model was used to project the future ridership of the potential projects identified by the general public, the Project Advisory Committee and GRTA's planning partners. The model was applied to a number of future (2025) scenarios including:

- a "baseline" system that included existing and committed services operated by MARTA, GCT, CCT and C-TRAN;
- an expanded local and express bus network, including the planned Regional Express Bus Plan;
- a "high capacity" scenario that featured rapid rail extensions in six new corridors (e.g., West Line to Thornton Road, East Line to Stonecrest Mall, North Line to Windward Parkway, South Line to Fairburn, Southeast Line to Jonesboro, and West Line to Greenbriar Mall);
- a "medium capacity" scenario that featured bus rapid transit or light rail transit lines in seven potential corridors (e.g., I-85 to Mall of Georgia, I-75 to Town Center Mall, I-285 from I-75 to I-20, Belt Line, C-Loop, Stone Mountain Freeway, SR 120 from Marietta to Lawrenceville, and SR92/SR 140 from Woodstock to Stone Mountain);
- a "low capacity" scenario that feature bus priority enhancements on 25 potential major arterial corridors.

A number of additional scenarios were tested varying both the number of projects and their capacity (i.e., high, medium, low). While the sketch planning model proved invaluable in projecting ridership for a variety of projects, services and scenarios, it could not accurately project ridership for intercity/commuter rail trips that extended outside its 13-county boundaries and for short, circulator trips that would be made within regional activity centers. The results of the sketch planning tool scenarios are summarized in Table 5-1. Overall, the weekday passenger trips were projected to increase by 133 percent, from 566,000 to 1.31 million daily boardings. Annual transit trips would likewise increase from 166 to 383 million.

Another measure of the Draft Concept Plan's effectiveness is the number of residents and workers that have reasonable access to transit. The sketch planning model was used to estimate the persons and employees that live or work within ½ -mile transit for the future 2025 scenarios. This measure of effectiveness indicates that the Draft Concept Plan improvements would increase access to transit for residents from 32 to 49 percent and for workers from 54 to 68 percent (Table 5-2). More important, the Draft Concept Plan would provide ***high-speed*** transit service in

Atlanta's most congested corridors that would greatly enhance the attractiveness and use of transit in these corridors.

TABLE 5-1

PROJECTED 2025 DAILY AND ANNUAL PASSENGER BOARDINGS

Action Step	Weekday Passenger Trips	Annual Passenger Trips
Existing (MARTA, CCT, GCT, C-TRAN)	566,000	166,000,000
Preserve & Maintain Existing System	61,000	18,000,000
Local & Express Bus Expansion	252,000	74,000,000
Bus Rapid Transit Plan	399,000	117,000,000
Other Fixed Guideway Projects	40,000	12,000,000
Total	1,318,000	387,000,000

Source: Sketch Planning Model ridership estimates.

TABLE 5-2

PROJECTED 2025 POPULATION & EMPLOYMENT WALK TO TRANSIT

Action Step	2025 Population	2025 Employment
Existing / Baseline System	1,526,000	1,494,000
Percent of Total within ½-Mile of Transit	32.4%	54.0%
Draft Concept Plan	2,297,000	1,887,000
Percent of Total within ½-Mile of Transit	48.8%	68.3%

Sources: Sketch Planning Model.

During the next phase of the RTAP project, the Draft Concept Plan will be tested and refined using ARC's regional travel demand model. Using the ARC model will enable GRTA to produce ridership projections that are consistent with other regional and corridor-level transportation studies. In addition, the regional travel demand model will generate other measures of system performance (e.g., air quality and roadway congestion).

5.2.2 Concept Plan Costs

How much will it cost to implement the Draft Concept Plan? The Draft Concept Plan represents a marked departure from previous regional transit plans. Whereas previous plans featured very costly investments in several rapid rail extensions (MARTA) and commuter rail lines, the Draft Concept Plan refocuses investments in making maximum use of existing services and facilities, expansion of local and express bus transit services throughout the region, and introduction of Bus Rapid Transit technology in key freeway and arterial corridors. As a result, the Draft Concept Plan will be ***less costly*** to construct and can be ***implemented faster*** than previous plans.

As described in the Action Steps (Section 5.3), the Draft Concept Plan will require a capital investment of about $15 billion dollars (2002 dollars) over the next 30 years. Much of this projected cost will be borne by existing local, state and federal funding sources. Nevertheless, the Draft Concept Plan will require some investment by the region over and above existing funding levels. It will take the cooperation of local, regional, state, and federal agencies to finance and implement the plan. The next phase of the RTAP will feature refinement of the Draft Concept Plan projects as well as preparation of detailed financing and phasing plans. These plans will establish possible mechanisms for funding the local, regional, state and federal shares of both the capital and operating budgets.

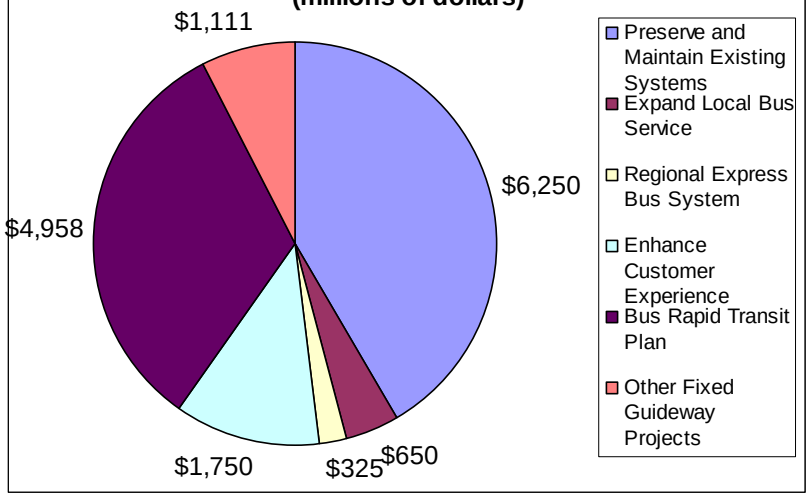
The largest projected cost, preservation and maintenance of existing transit systems, will require an investment of almost $6.3 billion, or 41% of the Draft Concept Plan capital expenses. This includes normal maintenance of the existing transit infrastructure (MARTA, CCT, GCT and C-TRAN) as well as regular replacement of revenue vehicles (buses and rail cars).

The next largest expenditure category is $5.0 billion, or 33% of the total cost, for a network of 139 route-miles of high-speed BRT busways in congested freeway corridors and 261 route-miles of arterial bus priority projects. While this investment is larger than the $3.3 billion that has been spent (to date) on the MARTA rail system, it will create a high-speed bus network that is eight times the size of MARTA's 47.6-mile rail system. And, it will focus transit investments in highly congested corridors where the need is the greatest.

Another major investment is $1.75 billion to "Enhance the Customer Experience". This broad category includes the expansion of a regional vanpool program and the support of other Transportation Demand Management strategies such as ridesharing, telecommuting, a regional travel information center, and implementation of a region-wide SmartCard fare system.

$1.1 billion has been allocated to support other fixed guideway projects such as the proposed Belt Line project in the City of Atlanta and transit circulator systems in seven major activity centers. Other investments include about $650 million to expand local bus service to all 13 counties in the non-attainment area and $325 million to implement the Regional Express Bus Plan in all 13 counties.

Figure 5-2
Draft Concept Plan Projected Capital Costs
(millions of dollars)



While the Draft Concept Plan will require additional investment in transit, the alternative – which is no action – will only lead to more congestion and air quality problems, making the region less attractive to new business and residents, and stifling the region's vibrant economy.

5.3 ACTION STEPS

The Concept Plan is described below as a series of action steps that, together, form an integrated and comprehensive approach to improving transportation choices in the Atlanta region.

5.3.1 Preserve and Maintain Existing Transit Services and Infrastructure

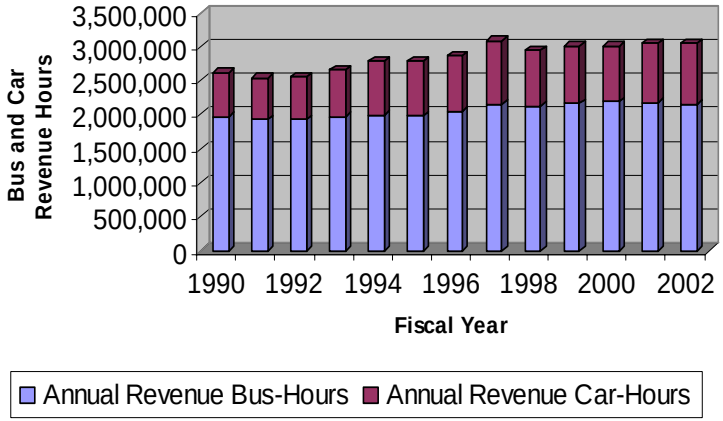
The first and foremost action step of the Draft Concept Plan is to ensure that the existing transit facilities and services operated by MARTA, CCT, GCT and C-TRAN are preserved and maintained. MARTA and the three suburban county transit systems have made significant and ongoing investments in the services that they operate as well as in the infrastructure that supports those services. These services and facilities are the foundation upon which additional, future transit improvements can be made.

MARTA

In 1965, the Georgia General Assembly passed the Metropolitan Atlanta Rapid Transit Authority Act of 1965 (MARTA Act) for the purpose of planning, constructing, financing and operating a rapid transit system in the metropolitan area. Following the successful passage of a 1971 referendum in Fulton and DeKalb counties, a 1% sales tax was levied for the Authority's use in constructing and operating the system. The Authority assumed operation of the Atlanta Transit System in 1972. Plans for the design and construction of the rapid rail system commenced, with the first rail service opening in 1979.

Maintain and Improve Existing Service Levels. Today, MARTA serves the 1.48 million residents of Fulton and DeKalb counties with over 125 bus routes and four rail lines. MARTA's bus system has grown to 690 buses and in fiscal year 2002 MARTA operated more than 2.15 million hours of bus service. With the opening of the North Springs Station in December 2000, MARTA's rapid rail system serves riders at 38 stations over 47.6 miles of track. MARTA had 280 rail cars and operated 896,000 car-hours of service in FY 2002. Figure 5-3 shows the trend of bus and rail service hours from 1990 through 2002.

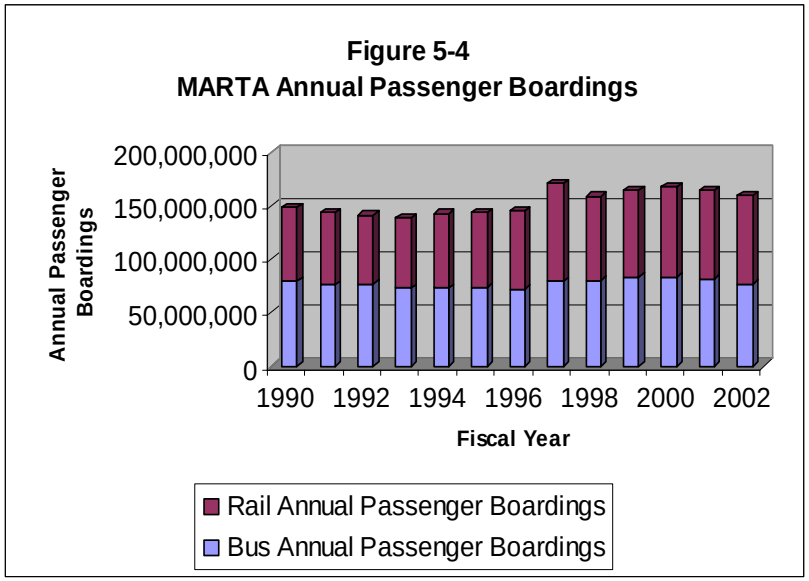
Figure 5-3
MARTA Bus & Rail Service Hours



Source: MARTA National Transit Database Reports.

In FY 2002, the MARTA bus and rail system carried 253,000 passenger trips (linked) and 544,000 passenger boardings on an average weekday and over 78.7 million passenger trips (linked). Following the fare increase and service cuts implemented in January 2001, MARTA's service hours and ridership have declined. Projected ridership for FY 2003 is 71.5 million, a decrease of almost nine percent. Figure 5-4 shows the trend of annual passenger boardings from 1990 through 2002. Over this period, annual boardings have remained steady, with the exception of a spike in FY 1997 to 170 million boardings that resulted from the 1996 Summer Olympics.

Figure 5-4
MARTA Annual Passenger Boardings



Source: MARTA National Transit Database Reports.

The population of DeKalb and Fulton counties has been projected by the Atlanta Regional Commission to increase from 1.48 million (2000 Census) to 1.86 million in the year 2025. The most critical element of the Draft Concept Plan is the need to maintain and even improve on the service levels operated by MARTA and increase its ridership. GRTA and MARTA should establish a goal of increasing MARTA's service levels consistent with the service area population growth. Based on these population projections, that would result in a 25% increase in service hours by 2025, or about 1.0% growth per year.

Maintain and Preserve Existing Infrastructure. MARTA has built and now maintains an extensive infrastructure to support its bus and rail system. The MARTA rail system features 38 stations, 47.6 miles of track, two maintenance and storage yards (Avondale and South), and numerous other support facilities. The total investment in the rail system has been about $3.3 billion to date. Similarly, the MARTA bus system features 690 buses, four bus garages (Brady, Hamilton, Laredo and Perry) and one heavy maintenance shop (Browns Mill). In addition, MARTA has separate support facilities for security, fare processing, operations control center, ridestores and other functions. Table 5-3 lists MARTA's support facilities, their function and age (years).

Table 5-3

MARTA Support Facilities

Facility	Primary Function	Age
Airport Ridestore	Retail Media Sales	6
Avondale Administration	Rail system administration	23
Avondale Car Maintenance	Rail car heavy maintenance	23
Avondale Central Control	Rail system operations center	23
Avondale Maintenance of Way	Rail infrastructure maintenance	23
Avondale Yard	Rail car storage	23
Avondale Zone Center	System security	23
Brady Bus Garage	Paratransit operations & maint.	28
Browns Mill	Bus heavy maintenance	26
Candler Center	Record storage, Police	5
Chamblee Yard	Secondary rail yard	15
College Park Police Precinct	System security	4
Decatur Avenue Radio Shop	Radio repair shop	31
Dunwoody Police Precinct	System security	5
Five Points Police Precinct	System security	8
Five Points Ridestore	Retail Media Sales	21
Garnett Zone Center	System security	16
Garnett Cash Handling	Fare processing center	20
Georgia Avenue	System custodial services	18
Hamilton Bus Garage	Bus operations & maint.	26

Indian Creek Police Precinct	System security	9
Lakewood Zone Center	System security	18
Laredo Bus Garage	Bus operations & maint.	19
Lindbergh Zone Center	System security	18
MARTA Headquarters Complex	Authority administration	15
Mayson St. Power & Equipment	Rail traction power maint.	19
Mayson St. Records Storage	Archives	19
Perry Blvd. Bus Garage	Bus operations & maint.	6
South Rail Yard	Rail car maintenance	14
Tucker Rail Facility	Final Assembly on rail cars	22
West Lake Zone Center	System security	22

MARTA also maintains a fleet of rail cars (280), buses (690), paratransit vans (94) and support vehicles. MARTA's capital planning process provides for the replacement of buses every 12 years and paratransit vans every 4 years. A rehabilitation program is in place to ensure that the maximum useful life of its rail cars is achieved. The average age of MARTA revenue fleets are 8.4 years for buses, 3.7 years for paratransit vans, and 17.1 years for rail cars. Table 5-4 lists the date and manufacturer of MARTA current bus, paratransit and rail car fleets.

Table 5-4

MARTA Revenue Vehicle Fleet Inventory

Vehicle	Manufacturer	Number	Year
Bus	Flxble	53	1988
Bus	New Flyer	159	1990
Bus	New Flyer	63	1991
Bus	New Flyer	40	1993
Bus	New Flyer	51	1994
Bus	New Flyer	118	1996
Bus	New Flyer	104	2000
Bus	New Flyer	102	2001
Van	Goshen	54	1988
Van	Goshen	40	2001
Rail	Societe Franco Belge	48	1979
Rail	Societe Franco Belge	34	1980
Rail	Societe Franco Belge	36	1981
Rail	Hitachi	6	1984
Rail	Hitachi	44	1985
Rail	Hitachi	4	1986
Rail	Hitachi	42	1987
Rail	Hitachi	24	1988
Rail	Breda	14	2001
Rail	Breda	28	2002

In 1998, MARTA awarded a contract for the procurement of 100 new rail cars – 28 for the North Line, 28 for the North Springs extension, and 44 for future ridership growth. As shown in Table 5-4, MARTA had received 42 of the 100 new rail cars by 2002.

MARTA has developed a Capital Improvement Program that supports the maintenance of the Authority's capital assets. MARTA's FY 2003 Recommended Capital Budget programs about $988 million in fiscal years 2003 through 2007. Major elements of the FY 2003 Recommended Capital Budget include:

- Buses ($107.9 m.)
- Paratransit Vans ($13.4 m.)
- Service Vehicles ($6.6 m.)
- Small Tools & Equipment ($6.3 m.)
- Parking Lot Repaving ($6.5 m.)
- Lindbergh Transit Oriented Development ($40.6 m.)
- Rail Car AC Propulsion Upgrade ($65.1 m.)
- Rail Services Facility ($125.3 m.)
- Fare Collection System Replacement ($166.2 m.)
- Bus Radio Upgrade ($19.0 m.)
- Rail Car Rehabilitation ($139.9 m.)

- Procurement of Final 44 Rail Cars ($36.3 m.)
- Systemwide Radio Upgrade ($32.3 m.)
- Replace Direct Fixation Fasteners ($9.1 m.)
- Procurement of 56 North Line Rail Cars ($60.5 m.)
- Station Rehabilitation ($5.6 m.).

TABLE 5-5

MARTA RECOMMENDED CAPITAL BUDGET ($ IN MILLIONS)

Budget Priority	FY03	FY04	FY05	FY06	FY07
Funded Budget	$228.2	$242.2	$200.7	$156.4	$100.2
Tier 1 Unfunded	$26.6	$22.7	$15.1	$7.9	$3.0
Tier 2 Unfunded	$115.5	$133.4	$78.2	$78.1	$84.4
Total	$370.3	$398.3	$294.0	$242.4	$187.6
Percent Funded	61%	61%	68%	65%	53%

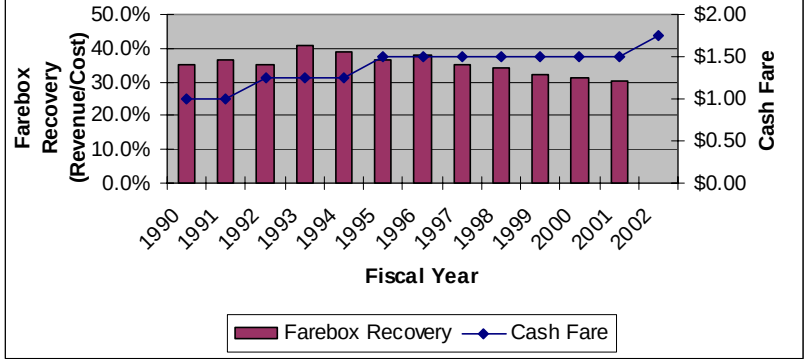
Source: MARTA Fiscal Year 2003 Operating and Capital Budgets.

MARTA has also identified a number of capital projects that are pending, subject to the availability of funds. Two levels of priority for unfunded projects have been established: Tier 1 represents the highest priority projects that will be implemented if funds become available; Tier 2 represents lower priority projects that are presently on hold. As shown in Table 5-4, the Tier 1 Projects total about $75.3 million and the Tier 2 projects total almost $490 million. Together, the unfunded projects account for about 36% of the total capital project needs.

A critical element of the Draft Concept Plan is the need to maintain and preserve the immense investment that has been made in MARTA's bus and rail system facilities. MARTA's first financial priority should be to preserve and maintain existing facilities and infrastructure.

Maintain Affordable Passenger Fares. There is probably no single transit improvement that has as marked effect on transit ridership as passenger fares. Figure 5-5 shows the recent trend of MARTA's passenger fares (adult cash fare) and the resultant farebox recovery ratio (farebox revenue / operating cost). Like virtually all transit systems, MARTA has seen its operating costs increase at a faster rate than its ridership and passenger revenues over the past two decades.

Figure 5-5
MARTA Fares & Farebox Recovery



In response to these rising costs and its legislative requirement that it maintain a 30% farebox recovery ratio, MARTA has raised its fares three times since 1990, most recently when the adult cash fare was raised from $1.50 to $1.75 in January 2001.

Following this recent fare increase and associated bus and rail service cuts, MARTA's ridership has decreased significantly.

Cobb Community Transit

Cobb Community Transit began service in 1989 with two express bus routes and five local routes. CCT has since expanded service to include these two express routes and 13 local routes (including two reverse commute routes). In 1994, CCT began operating a specialized service for individuals with disabilities – CCT Paratransit Service. CCT has 58 fixed route buses and 15 paratransit vans.

In addition to service improvements, CCT has recently completed a number of capital improvement projects. In May 2001, CCT opened its new operations, maintenance and administration facilities off the South Marietta Parkway. In 1998 a permanent transfer center was constructed on Cumberland Boulevard across from Cumberland Mall.

CCT should continue the development of additional park & ride lots, possible future expansion of its operations and maintenance facility, and in future bus purchases needed to support normal fleet replacement and service expansion.

Gwinnett County Transit

The express and local bus system that Gwinnett County has recently implemented has been highly successful. Ridership on the first three express bus routes exceeded projections within weeks of the start-up. In response Gwinnett County has added extra trips on two of the three routes. Ridership on the newly implemented local route system continues to grow.

Gwinnett County Transit (GCT) has implemented an interim maintenance and CNG fueling facility in Lawrenceville that has two bus bays for maintenance and limited space for vehicle storage. However, this interim site is not adequate to support the full operation of the start-up plan fleet of 60 buses and 14 paratransit vans. GCT has identified a potential site for a permanent bus maintenance and storage facility. Design and construction of the permanent site will commence when funding becomes available.

GCT began operation of its initial three express bus routes with a fleet of 17 suburban express coaches manufactured in 2001 by North American Bus Industries (NABI). GCT has also exercised an option on MARTA's bus contract with Orion Bus Industries for seven additional suburban express buses and 36 30 and 40-foot city buses that will be used on the local bus routes. These Orion buses were delivered by early 2003. These NABI and Orion buses will be sufficient to operate the fixed route start-up plan.

GCT should develop a permanent maintenance facility and in future bus purchases needed to support normal fleet replacement and service expansion.

Next Steps

In order to mitigate the Atlanta region's air quality and traffic congestion problems, transit must not just maintain its current ridership levels, but attract new riders. This can only be accomplished if the region's transit operators: (1) provide more transit choices to residents; (2) provide a high quality of service; and (3) provide that service at a fair and reasonable price. GRTA's highest priority is to work together with the State of Georgia, MARTA, CCT, GCT, C-TRAN and each of the affected counties to reverse the recent cycle of reduced service levels, higher fares and declining ridership.

5.3.2 Expanded Local Bus Service

The second step of the Draft Concept Plan is the expansion of bus transit service in areas of the region that are presently not served by transit or are underserved. Local fixed-route service (along with supplemental ADA paratransit service), is currently provided in only five of the 13 counties: Fulton, DeKalb, Cobb, Clayton, and Gwinnett, plus a small system in Canton. Table 5-6 summarizes some of the key characteristics of the four major existing transit operators in the Atlanta region (MARTA, CCT, GCT and C-TRAN). These transit operators have assets of more than 1,100 bus and rail vehicles and carry more than 164 million trips (unlinked) each year.

Even in these five counties, transit service is limited to the more densely developed areas. As the region continues to grow, additional areas will be able to support regular bus service. Expanding bus service has several key attributes that lend it to being a key element of the Concept Plan:

- It can be implemented relatively quickly
- It requires a modest investment to start-up and operate
- It can effectively link regional activity centers throughout the region
- It has the potential to carry a significant number of riders
- It is flexible and can be reconfigured to meet changing demands

TABLE 5-6

CHARACTERISTICS OF EXISTING TRANSIT OPERATORS

Operating Agency	Bus or Rail Routes	Fleet Vehicles	Annual Vehicle-Hours	Annual Trips (mil.)
MARTA (1)				
Bus	125	690	2,150,344	76,805,808
Rail	4	280	896,211	82,339,493
Total	129	970	3,046,555	159,145,301
CCT (2)	14	53	121,600	2,819,678
GCT (3)	11	60	132,700	2,485,000
C-TRAN (4)	3	24	84,038	1,535,300
Total	157	1,107	3,384,893	165,985,279

Sources:

(1) MARTA FY 2002 National Transit Database Report and FY 2003 Operating and Capital Budgets.

(2) CCT FY 2001 National Transit Database Report.

(3) Gwinnett County Start-Up Service Plan (September, 2000). Projections are for full start-up transit system that will be implemented by 2004.

(4) C-TRAN. Projections are for new service implemented in Feb. 2003.

This element of the Draft Concept Plan would add new bus service in the eight counties that do not have service today, as well as fill in gaps in service in the five counties where transit service is now operated. An expanded local bus service plan was developed based on a thorough review of current operations, proposed short-range transit plans, current and projected population and employment trends, the Transit Needs Assessment (described in Chapter 3), and discussions with local agency staff.

In developing the plan, GRTA reviewed the current and proposed service levels and ridership, then established target service levels for each county based on current per capita service levels in Fulton, DeKalb, Cobb and Gwinnett counties and ARC's projections of population (2025) and population density.

The resultant service level targets, shown in Table 5-7, present the annual vehicle-hours per capita targets and the projected future 2025 annual vehicle-hours for each county. For the 13-county region the total annual vehicle-hours (bus and rail) would increase from 3.3 million to 6.5 million, or about 96 percent. The per capita service levels, however, would only increase about 49 percent from 0.90 to 1.34 annual vehicle-hours per person. These future service levels represent a prudent expectation of what level of transit service could be financially and operationally feasible in the next 25 years.

One important feature of the plan is that service would not be limited to intra-county routes. The current suburban county systems (CCT, GCT and C-TRAN) provide local service primarily within each county, but with relatively few connections to adjacent counties. The expanded service plan includes many cross-regional routes that would connect two or more adjacent counties.

TABLE 5-7

PER CAPITA TARGETS FOR LOCAL BUS TRANSIT SERVICE

County	Current Annual Vehicle-Hours	Current Veh-Hours per Capita	Target 2025 Veh.-Hours per Capita	2025 Annual Vehicle-Hours
Cherokee	0	0.00	0.30	65,000
Clayton	33,480	0.14	1.00	260,000
Cobb	121,600	0.20	1.50	1,068,000
Coweta	0	0.00	0.15	15,000
DeKalb	1,368,000	2.05	2.00	1,664,000
Douglas	0	0.00	0.30	51,000
Fayette	0	0.00	0.30	48,000
Forsyth	0	0.00	0.15	17,000
Fulton	1,676,000	2.05	2.00	2,056,000
Gwinnett	132,700	0.23	1.50	1,081,000
Henry	0	0.00	0.30	63,000
Paulding	0	0.00	0.30	24,000
Rockdale	0	0.00	0.30	39,000
Total	3,331,580	0.90	1.34	6,451,000

Notes: MARTA's annual revenue vehicle-hours were apportioned to Fulton and DeKalb counties based on county population. MARTA's annual vehicle-hours include both bus and rail operations.

One size does not fit all. The expanded local bus service plan features a mix of different services including express and limited stop routes that operate between park & ride lots and major employment centers, local bus routes that provide frequent stops along heavily traveled urban and suburban corridors, crosstown routes that operate across jurisdictional boundaries, and circulators that operate within major activity centers. The expanded bus plan has been tailored to reflect the levels of development and travel needs within each county and jurisdiction

of the Atlanta region. For example, local bus service would be concentrated in areas that are more heavily developed. Areas that are less densely developed may have limited local bus service, even in the future year 2025 or 2030.

Similarly, the service would be operated by a mix of transit vehicles that would match the travel demand for that service. Express bus routes would be operated with suburban express or over-the-road (OTR) coaches that provide a more comfortable ride than standard city buses. Express buses would have padded, reclining seats, individual reading lights, luggage racks and other amenities that would help to attract new riders to the system. Local routes and activity center circulator routes would be operated with standard city buses, varying in length from the 40-foot buses commonly operated by MARTA and CCT to smaller 25, 30 and 35-foot buses that have are less obtrusive on neighborhood streets.

The new bus routes would connect to MARTA rail stations, express bus park & ride lots and other transit centers where possible. Transit centers would be constructed at several suburban locations where multiple routes would converge; examples include proposed new malls in Newnan and McDonough; the Jonesboro commuter rail station, Stonecrest Mall, and North Point Mall.

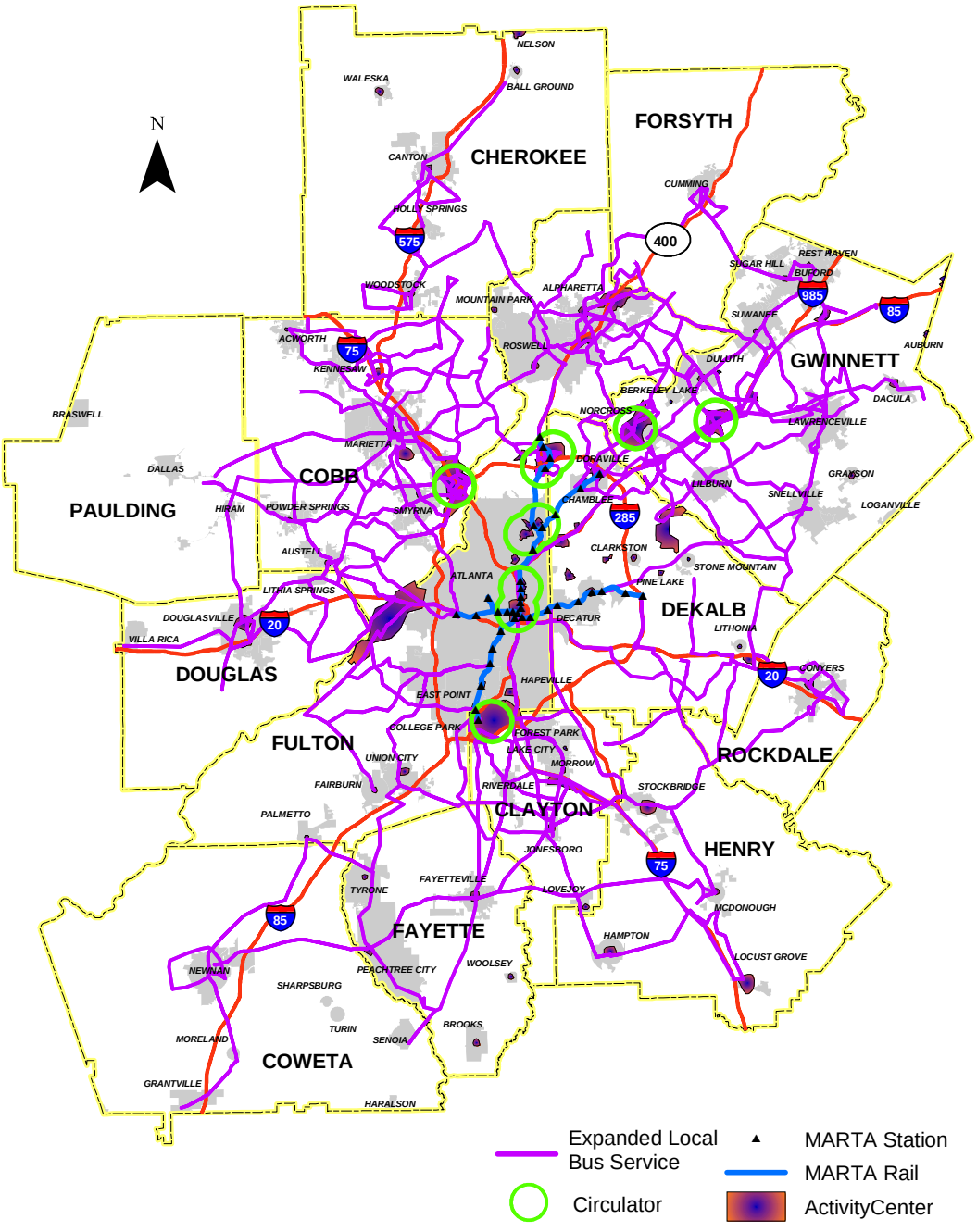
The local bus service plan includes a total of 120 new routes that would serve all 13 counties in the region (Figure 5-6). The expanded local bus service plan would require a fleet of about 2,290 buses and rail cars. This service expansion represents a sizable increase (108 percent) in the transit equipment over and above the 1,100 revenue buses and rail cars now operated by MARTA, CCT, GCT and C-TRAN. But this expanded service is also projected to generate about 237,000 more daily transit trips (in year 2025) than the current systems.

Next Steps

Implementation of the expanded local bus service plan will require coordination between GRTA and each of the affected local counties and transit agencies. The next step is to conduct a transit needs study for each county that details the needs and potential service plans on a county-by-county basis, and develops organization and finance elements necessary to guide the implementation of the plan.

FIGURE 5-6

EXPANDED LOCAL BUS SYSTEM



5.3.3 Regional Express Bus System

The development of a regional express bus system is a very effective means of providing more transportation choices to those residents of the 13-county non-attainment area who presently have few or no transportation alternatives to their private automobiles. A regional express bus system can be implemented quickly (over a period of just a few years) and can have an immediate impact on travel choices and congestion in affected corridors. The experiences of Cobb Community Transit (CCT) and Gwinnett County Transit (GCT) in implementing highly successful express bus programs indicates the untapped potential for similar express bus services in other parts of the region.

GRTA and the RTAP Project Team have worked closely with the Project Advisory Committee and affected counties to develop a Regional Express Bus Plan that would provide service between suburban residential areas and major employment destinations, primarily during peak travel periods (e.g., 6:00 to 9:00 a.m. and 3:30 to 6:30 p.m.). Each express bus could replace 40 automobiles now operating on congested freeways like I-75 North and South, I-85 North and South, I-20 East and West, and GA 400.

The express service is designed to improve mobility by providing fast transit connections between various portions of the region. Much of the service is patterned after the successful express bus routes of CCT, GCT, and MARTA. Those routes typically provide fast peak period service from a suburban park-and-ride lot to downtown Atlanta or a MARTA rail station, with reverse-commute service to employment areas in the general vicinity of the origin point.

Most of the express bus routes will originate at park & ride lots, and will operate on high-occupancy vehicle (HOV) lanes where and when they are available. The region's Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP) call for accelerated construction of HOV lanes on Atlanta's freeways. The routes would serve major activity centers, such as downtown and midtown Atlanta, Cumberland, Hartsfield Airport, and Perimeter Center. Many express routes would connect with MARTA's rail and bus system to improve accessibility and mobility throughout the region.

The Regional Express Bus Plan consists of 37 routes that would be fully implemented by 2010. Twenty-six routes would be implemented in the next three years with funding provided by 11 of the 13 metro counties under an innovative funding concept whereby the counties pay the bus operating subsidy and GRTA provides bond funds for road improvements in each county.

Of the 37 new express routes, 11 would operate directly to downtown Atlanta, while many others would connect with suburban MARTA rail stations where patrons could transfer to reach downtown Atlanta or many other locations served by MARTA. Other route destinations include Hartsfield Airport (seven routes), Cumberland/Galleria (six routes), Midtown Atlanta (three routes), and Perimeter Center/North Springs (nine routes). Five routes would connect to other MARTA stations, including Doraville, Kensington, Lindbergh, and Holmes. Figure 5.7 shows the proposed network; routes are color-coded according to the principal destination served by each route.

Some of the major attributes of the express bus service plan are:

- Many express routes will provide reverse-commute service, to enable residents of the central portion of the region to access growing suburban employment markets.

- The plan would provide off-peak service in some highly traveled corridors. In some cases two or more peak period routes would be combined for off-peak service.

- The service will connect to existing and planned local bus routes: MARTA, CCT, GCT, C-TRAN, and Canton. Additional local bus service in the other counties should be encouraged in order to provide better access to and from the express system. In order to supplement the inter-county connections that the express routes will provide, connections should also be improved among the existing local route systems.

- There will be several key hubs for the system, where transfers can be made among regional express routes, as well as to local routes and in some cases MARTA rail service. Examples include Hartsfield Airport, Cumberland Transit Center, and Perimeter Center.

Table 5-8 summarizes operating statistics for each route in the proposed system, including service frequencies for peak, reverse-peak, and midday service.

The plan also includes a reserve of 20 peak buses for currently unidentified improvements. This could include additional buses for some of the proposed 37 routes to handle higher demand, extensions of some routes, or entirely new routes. Key operating statistics for the Express Bus Plan are listed below:

- The overall plan will require 161 buses to operate the peak schedule, including the 20 reserve buses; with 20% spares, the total fleet size would be 193 buses. The total number of daily one-way bus trips would be over 1,000.

- Daily revenue bus-hours would be approximately 1,060; annual bus-hours would be about 290,000.

- Daily revenue bus-miles would be about 24,000, and annual bus-miles would be 6.6 million.

- Estimated daily ridership is approximately 15,500 trips in 2010.

All operating and maintenance functions will be contracted to private providers or to an existing system (e.g., MARTA, CCT, GCT). Unit costs for this analysis have been derived from GCT and CCT contract rates.

The fare structure will be generally similar to that used by CCT and GCT for their express routes, including discounted passes and free transfers to/from MARTA. Higher fares are assumed for longer routes.

Next Steps

Implementation of the Regional Express Bus Plan will require coordination between GRTA and each of the affected local counties and transit agencies. GRTA and 11 of the 13 counties have reached agreements regarding funding operations for the first three years of service. GRTA is now proceeding with the finalization of the express bus service plans in concert with each of the counties, specifying fare policies and operating procedures, procuring vehicles, identifying potential park & ride lots and maintenance support facilities, and analyzing service contract issues. GRTA intends to begin revenue service in 2004.

FIGURE 5.7

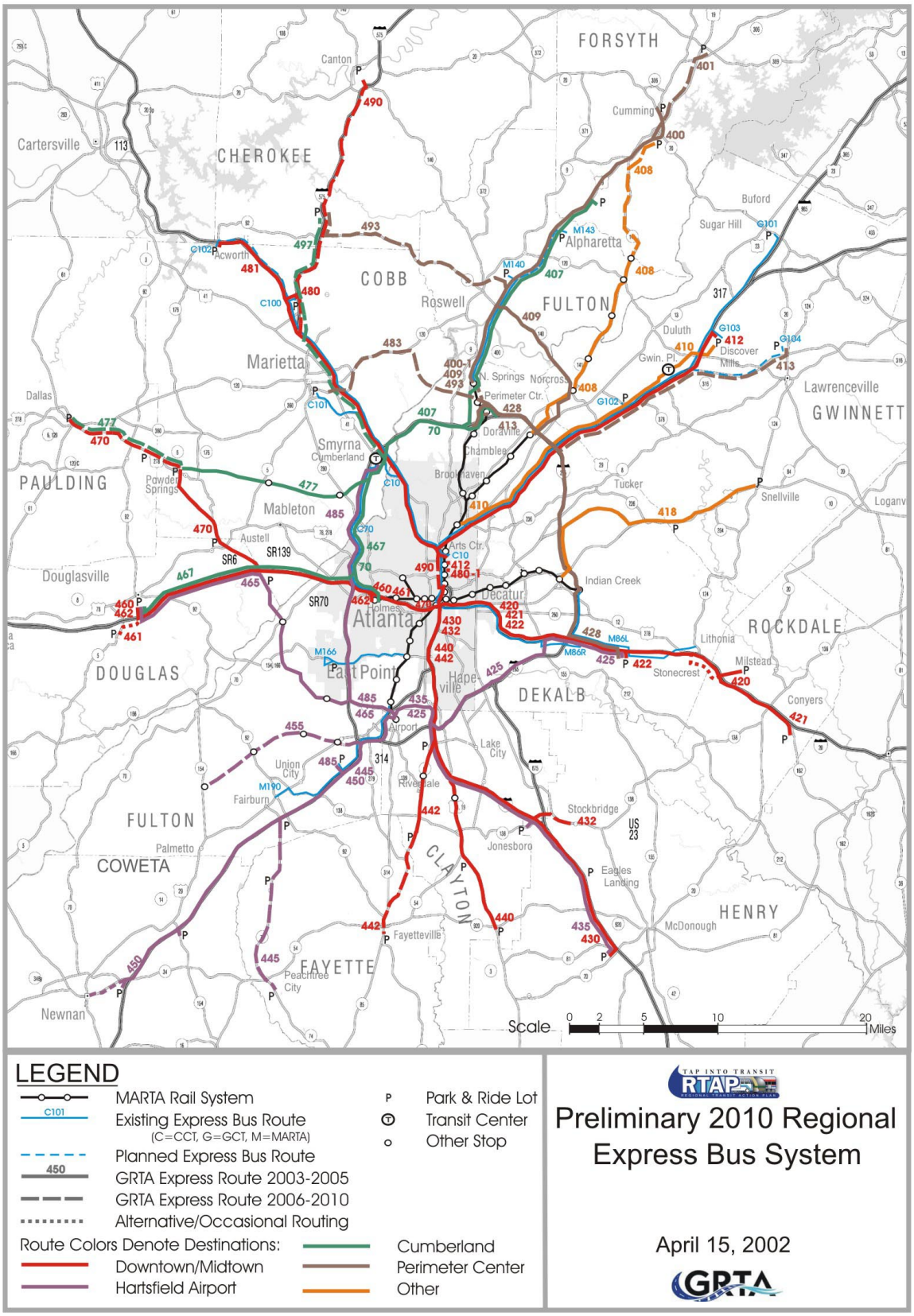

FORSYTH
CHEROKEE
COBB
FULTON
GWINNETT
PAULDING
DOUGLAS
DEKALB
ROCKDALE
COWETA
FAYETTE
CLAYTON
HENRY
Canton
Cartersville
Cumming
Buford
Sugar Hill
Alpharetta
Roswell
Marietta
Dallas
Smyrna
Cumberland
Powder Springs
Mableton
Austell
Douglasville
Atlanta
Arts Ctr.
Midtown
Decatur
Indian Creek
Tucker
Snellville
Lawrenceville
Duluth
Gwin. Pl.
Discover Mills
N. Springs
Norcross
Perimeter Ctr.
Doraville
Chamblee
Brookhaven
Lithonia
Milstead
Stonecrest
Conyers
Loganv
East Point
Hapeville
Airport
Lake City
Union City
Fairburn
Riverdale
Jonesboro
Stockbridge
Eagles Landing
McDonough
Fayetteville
Peachtree City
Palmetto
Newnan
Scale 0 2 5 10 20 Miles
LEGEND
MARTA Rail System
C101 Existing Express Bus Route (C=CCT, G=GCT, M=MARTA)
Planned Express Bus Route
450 GRTA Express Route 2003-2005
GRTA Express Route 2006-2010
Alternative/Occasional Routing
Route Colors Denote Destinations:
Downtown/Midtown
Hartsfield Airport
Cumberland
Perimeter Center
Other
P Park & Ride Lot
Transit Center
Other Stop
TAP INTO TRANSIT RTAP
Preliminary 2010 Regional Express Bus System
April 15, 2002
GRTA

Table 5-8

Regional Express Bus Plan Summary

Rt. #	From	To	Via	Peak
400	Cumming	N. Springs Station	GA 400	30
401	North Forsyth (GA306)	Perimeter Center	GA 400	30
407	Forsyth/N. Fulton	Cumberland	GA 400, I-285	30
408	Peachtree Parkway	Doraville	GA 141	30
409	Holcomb Bridge	N. Springs/Doraville	Holcomb Bridge	30
410	Discover Mills	Lindbergh Station	I-85N HOV	30
412	Discover Mills	Midtown Atlanta	I-85N HOV	30
413	Lawrenceville	Perimeter Center	GA 316, I-85, I-285	30
418	Snellville	Kensington Station	US 78	30
420	Conyers (Sigman Rd.)	Atlanta CBD	I-20E	30
421	Conyers (Salem Rd.)	Atlanta CBD	I-20E	30
422	SE DeKalb (Panola)	Atlanta CBD	I-20E	30
425	SE DeKalb	Hartsfield Airport	1-20E, I-285	30
428	SE DeKalb	Perimeter Center	1-20E, I-285	30
430	McDonough	Atlanta CBD	I-75S	30
432	Stockbridge	Atlanta CBD	I-75S	30
435	McDonough, Stockbr.	Hartsfield Airport	I-75S	30
440	Jonesboro/Tara Blvd.	Atlanta CBD	Tara Blvd, I-75 HOV	30
442	Riverdale (Fayetteville)	Atlanta CBD	SR85, I-75 HOV	30
445	Peachtree City	Hartsfield Airport	SR74, I-85S	30
450	Newnan	Hartsfield Airport	SR34, I-85S	30
455	S. Fulton Parkway	Hartsfield Airport	S. Fulton Parkway	30
460	Douglasville MMT	Atlanta CBD	I-20W	30
461	Hwy 5, Arbor Square	Atlanta CBD	I-20W	30
462	Douglas County	Holmes Station	I-20W	
465	Douglas, SW Cobb	Hartsfield Airport	Thornton, Camp Ck	60
467	Douglas County	Cumberland	I-20W, I-285	30
470	Dallas, Austell	Atlanta CBD	US278, I-20W	30
477	Dallas, Powder Spr.	Cumberland	US278, E-W Conn	30
480	N. Cobb (Town Ctr.)	Midtown Atlanta	I-75 HOV	30
481	Acworth	Midtown Atlanta	I-75 HOV	30
483	Marietta	Perimeter Center	Johnson Ferry Rd.	30
CCT 70	Holmes-Cumberland	Perimeter Center	I-285	60
485	Cobb	Airport, S. Fulton	I-285	30
490	Canton	Atlanta CBD	I-575, I-75N	30
493	Woodstock/Roswell	Perimeter Center	GA 92, GA 400	30
497	S. Cherokee	Cumberland	I-575, I-75N	30
Reserve for future headway improvements & new routes				

5.3.4 Bus Rapid Transit System

Bus Rapid Transit (BRT) is a new acronym for a familiar but sometimes overlooked concept. BRT refers to a family of physical and operational improvements that are designed to reduce travel times for buses in traffic and enhance the customer experience through improved service levels, convenient and accessible station locations, more reliable service, and better passenger information systems and marketing. The BRT improvements will permit transit travel times that are competitive with the private automobile.

In North America, several communities have planned and implemented BRT as a possible rapid transit solution. In addition, the Federal Transit Administration (FTA) currently supports a Bus Rapid Transit Demonstration Program. This BRT proposal utilizes the same technologies and many of the same services as the Atlanta Metro Chamber's flex trolley proposal. Flex Trolleys or BRT Systems are designed to cost effectively provide time competitive transit services in lower density areas like Atlanta's suburban counties. This interest in BRT reflects the concern in many communities that some of their corridor transportation problems may not be appropriate for conventional transit solutions whether through improved conventional bus systems or through the introduction of rail transit. Factors that have contributed to the need for a new, creative transit solution include:

- the perceived poor image of conventional bus systems
- the difficulty of delivering a fast, reliable, frequent and easy to understand service using on-street bus routes
- the high cost of rail transit solutions
- the difficulty of providing a transit service that can serve today's dispersed suburban land uses
- the air pollution concerns posed by current bus technology
- the need for transit solutions that can be implemented incrementally

BRT offers a high-speed, high-quality way to improve mobility at relatively low cost through a systematic approach to service design and provision using off-the-shelf technologies in new and creative ways.

BRT Overview

BRT involves a systems approach to the construction and operation of a bus-based rapid transit service. The flexibility of the bus to operate on different types of right-of-way and under different operating conditions means that BRT encompasses a wide range of possible guideways, stations, vehicles, ITS

technologies and operating strategies. Table 5.9 shows a partial list of BRT systems either in operation or under design that illustrates this range of operating configurations.

TABLE 5.9

REPRESENTATIVE BRT SYSTEMS

Location	BRT Configuration	Status
Ottawa, Ontario	Exclusive shoulder and bus lanes	1983
Pittsburgh, PA	Exclusive R-O-W includes LRT co-location	1977, 2001
Miami, Fl	At-grade busway	1997
Vancouver, BC	At-grade busway	2001
Brisbane, Qld	Exclusive right-of-way	2001
Adelaide, SA	Grade separated guided busway	1986
Curitiba, Brazil	Median arterial busway	1974
Boston, MS	Arterial bus lanes and bus tunnel	2002
Essen, Germany	At grade guided busway	1988
Cleveland, OH	Median arterial bus lanes	Design
Eugene, OR	At grade guided busway	Design
Charlotte, NC	Mix of exclusive and at grade busways	Planning
Los Angeles. CA	At-grade busway	Design
Hartford, CT	Exclusive right-of-way	Design

In planning and designing a BRT project or system, the guiding principles must be to deliver a superior level of service, transit travel times that are competitive with the private automobile, and a high quality public transit image. Clearly, transit use will only increase if its design and operation results in a quality of service that meets the expectations of those people who now commute by car. Satisfying this passenger expectation requires a service that is fast, frequent, convenient and simple and easy to understand. To meet these expectations will require an exclusive or semi-exclusive guideway, frequent service, well defined stations and real time passenger information.

BRT Guideways

In its most developed form, BRT operates on a busway which is a two-lane, two-way road with or without shoulders depending on climatic conditions. At stations, the right-of-way is usually widened to add two stopping lanes and a median barrier. The four-lane width in the station area is important because it allows some buses to pass through the station as non-stop, higher speed express services. BRT services can also be integrated with HOV lanes.

Guided bus technology has also been used to minimize the impact on the corridor width and the right-of-way required. This technology improves the ride comfort at high speeds and facilitates co-location with LRT.

In many instances BRT may operate outside a grade separated right-of-way in a bus lane on an arterial street. The bus lane may

be a conventional curb lane, median lane or other lane as circumstances dictate. Intersection priority may be provided through various forms of signal priority or by limited grade separation.

Because the BRT bus operates both on and off the busway, the busway can be built in discontinuous sections linked by bus lanes or other priority treatments such as signal pre-emption and queue jumps on arterial roads or freeways. This means that the busway can be built incrementally, with priority being given to the construction of the busway sections that produce the highest initial benefit and rate of return.

BRT Stations

BRT stations should be pleasant, high quality environments with a well-developed directional signage system that directs the passenger through the station, to and from important areas and buildings in the immediate vicinity of the station, and to and from other transportation modes where applicable – much like MARTA's rail stations. Each station should be readily accessible to pedestrians, bicycles, other buses, and cars.

Once in the station, passengers should be able to easily use real time information that informs them how to travel to their ultimate destination, as the optimum routing may change by time of day. The requirements of the fare system should be explained and be easily understood. It should be easy to pay a fare and make a trip involving the use of buses operated by different transit systems and, if necessary, other modes of transport. Passengers should feel welcome in the stations and not feel insecure even when using a station late at night. This suggests the need for a high standard of station maintenance and an obvious attention to passenger security.

The preferred station layout consists of two side loading platforms. In major stations with more than 75 buses per hour (in each direction), the busway is usually widened to four lanes with a central median to allow express buses to bypass and pull out around stopped buses. At grade pedestrian crossings also may be employed.

The station buildings and facilities are very similar as those required for rail and can be as simple as a single shelter or as complex as those found on any subway rail system. As with rail, BRT stations can be designed with high platforms and pre-paid areas to speed loading and facilitate access by disabled persons.

Experience has shown that well designed busway stations have the same ability as rail stations to act as catalysts for joint development and land use intensification. Busway station investments can influence compact, mixed use, and transit-supportive development. This in turn can stimulate increased transit ridership, but transit investment alone is not sufficient to influence land use decisions. Other supportive policies are required as well, such as transit oriented regional planning policies, urban design standards and parking policies.

Implementation

The key functional differences between BRT and rapid rail systems is the ability to operate busway stations as stand alone entities without initially having to connect them with a busway right-of-way or track as is required for rail rapid transit. Buses can operate between stations using the arterial and freeway road system under varying degrees of priority. This aspect of busway infrastructure has important implications for the planning, design and operation of any busway corridor.

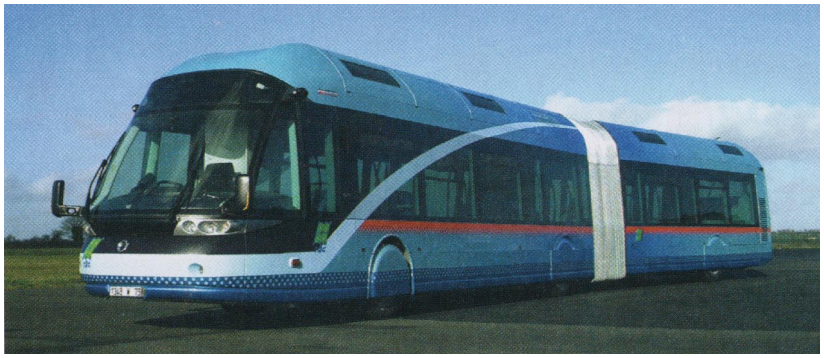
The staged development of a busway corridor may include sections in which buses use existing streets and bus lanes between stations as an interim measure. This flexibility means that rather than implementing a busway corridor by building it in a conventional rapid transit manner from one end to the other, strategic infrastructure investments can be made initially at key locations throughout the whole length of the corridor to establish an early presence for the BRT service. This provides an opportunity to influence travel behavior and land use as new development is occurring. For example, a busway corridor might be developed by initially constructing a limited number of key stations where land use development potential exists, linking them by mixed flow traffic lanes and exclusive bus lanes, and then gradually replacing these mixed flow links by fully exclusive busway sections.

BRT is also recognized as a possible precursor to rail rapid transit. Properly planned and designed, it can help to establish and grow patronage to levels that can eventually support frequent rail services. The early introduction of rapid transit in a corridor through the use of BRT also encourages the important link between transportation and land use.

This strategic long-term approach to the implementation of rail transit can be accommodated by ensuring that the basic infrastructure elements of the busway are also rail compatible. The future conversion of a busway to rail can also take the form of co-location in which both technologies exist in the same guideway.

Bus Types

BRT technology is sometimes viewed as being inferior to rapid rail transit. This concern is reinforced by the poor image of the present bus service in many communities especially among non-transit users. Much of this image problem is connected with perceptions of the typical diesel bus. There are, however, already some examples of BRT services where new vehicle technology is either already being used or is planned to be used. This is analogous to the situation with LRT where the old technology streetcar was reengineered as the new light rail vehicle.



New low floor hybrid technology buses with on-board generators driving wheel mounted electric motors with supplementary power from batteries are now becoming available but most of the applications have been for slower speed operations than would be required by the inter-regional BRT service. Other new bus

technology examples include dual mode, articulated, low-floor, guided buses.

Systems Elements and Controls

An important aspect of rail transit for many people is its ease of use and simplicity. To help overcome this, BRT includes state-of-the-art vehicle location and control systems to provide a rail like level of service in terms of reliability and real time passenger information.

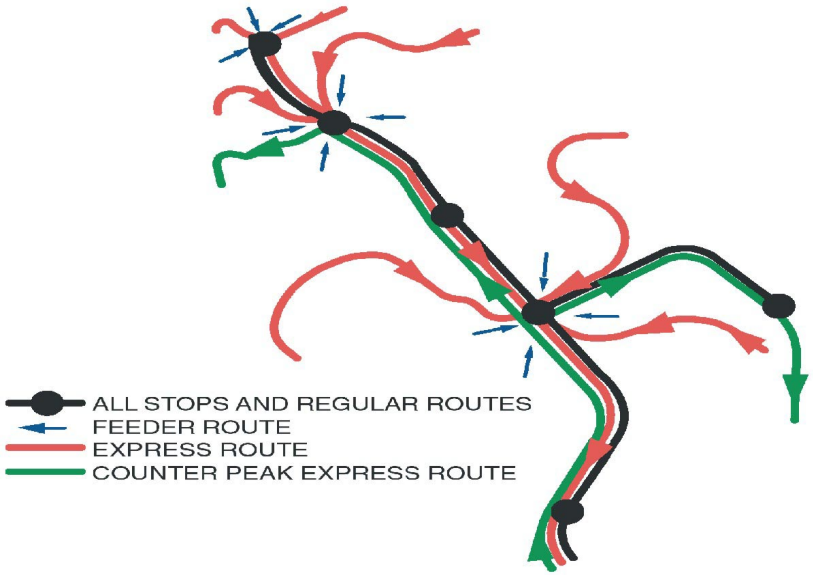
The use of Intelligent Transportation Systems (ITS) also permits a more creative approach to traffic control and signal priority. It is often difficult to make effective use of signal priority in an integrated traffic signal network because of the limited ability to modify cycle times and phases. Also, from the BRT perspective, being able to maintain service regularity in the face of traffic congestion can be equally if not more important than simply increasing travel speeds on some buses. Giving priority to a bus that is running ahead of schedule will, for example, only exacerbate the typical bunching problem that is often associated with high frequency bus routes. By using ITS to give priority to only buses that are behind schedule this problem can be avoided.

Bus Operations and Service

BRT is an appropriate rapid transit technology for transportation corridors with projected peak hour/peak direction passenger volumes between 1,000 and 10,000 or more riders. It is particularly compatible with the low-density suburban land uses and offers the opportunity to establish rapid transit in places that may not justify the cost of rail transit. BRT provides unlimited flexibility to tailor the public transport operation to suit the corridor and regional needs. Buses can operate on and off a BRT busway and therefore offers the opportunity to link feeder and line haul express services to reduce the need for passengers to transfer. BRT station design often allows buses to pass other buses that are picking up and dropping off passengers. This means that skip stop and express services can be combined with local stopping services in the same right-of-way.

The typical BRT operating configuration consists of a high frequency all-stops service running the full length of the corridor and stopping at each station. It provides a service not unlike that of light rail transit (LRT) except the vehicle used is a rubber-tired bus. Passengers access this service as they would an LRT service by walking or cycling to the stations, transferring from feeder buses and by using park-and-ride and kiss-and-ride facilities where provided.

Supplementing the all-stops service are other high frequency bus routes that typically pick up and drop off the majority of their passengers at on-street locations away from the immediate busway corridor. Such services may operate only over a section of the busway to take advantage of the high operating speed of the busway and / or to serve particular stations and trip generators on the busway. The most common example of this type of service is an express or limited stop bus route that picks up in a residential community, travels to the busway and then operates express or skip stop to an employment center.



This is a key feature of BRT, which gives it the ability to offer a high frequency no-transfer service to a higher proportion of trips than is usually the case for rapid transit in suburban areas. In the Ottawa system, for example, 70% of the passengers use this type of service and on the Adelaide guided busway 64% of passengers access their bus before it reaches the busway.

The ability to offer an area-wide express/ limited stop network also means that all major destinations can be within a one transfer ride of virtually all residential areas. These factors translate into operating costs that are usually less than those for an equivalent on-street bus operation and a transit technology that is particularly adaptable to the dispersed trip making that occurs in suburban areas.

As well as providing the primary rapid transit service in some communities, BRT has also been deployed as a component of an integrated multi-modal rapid transit network in which it may act as both a corridor rapid transit service and as a feeder mode to a rail network.

Potential BRT Corridors

The flexibility, low-cost (relative to rail transit), high quality of service, staged implementation, and adaptability to suburban land use patterns makes BRT a perfect fit for the Atlanta region. The Draft Concept Plan features a network of high-speed BRT facilities in seven highly congested freeway corridors and bus priority projects in 18 highly developed arterial corridors. This BRT Plan forms the centerpiece for potential fixed guideway improvements in the Draft Concept Plan. The proposed BRT network of high-speed busways and arterial bus priority projects will complement and weave together the expanded local bus service (Section 5.3.2) and regional express bus plan Section 5.3.3) into an integrated and effective transit network.

A key element of the BRT plan is the implementation of HOV lanes on all major expressways in the Atlanta area. During the initial stage of the BRT program, express buses will operate on the HOV lanes with intermediate stops located only at key transfer points (e.g., MARTA rail stations). Locally, both Gwinnett

County Transit and Cobb Community Transit already operate their express buses on HOV lanes on I-85 and I-75, respectively.

Depending on the design of the HOV facilities, on-line stations can be introduced at major interchanges, enabling passengers to make convenient transfers between express and local buses. Once on the busway/ BRT system, passengers would be able to connect to other bus routes that operate throughout the region.

TABLE 5-10. PROMISING HIGH-SPEED BRT CORRIDORS

Project Corridor	From	To
GA. 400	I-285 or North Springs MARTA Station	Forsyth County
I-20 West	Downtown Atlanta or H.E. Holmes MARTA Station	Douglas County
I-20 East	Downtown Atlanta or Indian Creek MARTA Station	Rockdale County
I-285	I-75 / Cumberland	I-20 / Indian Creek
Northeast (I-85 North)	Lindbergh MARTA Station or Doraville MARTA Station	Mall of Georgia
Northwest (I-75 North)	Downtown Atlanta or Arts Center MARTA Station	Cherokee County
Southeast (I-75 South)	Downtown Atlanta or East Point MARTA Station	McDonough

The Draft Concept Plan features high-speed BRT busways in seven major travel corridors in the Atlanta region (Table 5-10). These seven busways comprise about 139 route-miles – more than twice the current route-miles of the MARTA rail system. The estimated capital cost of this BRT network would be about $3.2 billion (2002 dollars).

Another form of priority is to designate bus-only lanes or other bus priority treatments on major arterial streets. Bus-only lanes are used in many cities to speed bus traffic along major streets, particularly in downtown areas and in major travel corridors. With adequate enforcement of violations, bus-only lanes can greatly speed transit operations by separating buses from adjacent auto traffic. Providing traffic signal priority to transit vehicles can also speed operation on streets.

Eighteen potential corridors for bus-only lanes or other preferential treatment on arterial streets are identified in Table 5-11. The estimated capital cost of the 261-mile arterial BRT network would be about $1.7 billion.

Next Steps

These high-speed and arterial BRT projects would be a key element in providing an integrated regional transit system. During the next phase of the RTAP program, these BRT projects will be subject to further refinement and prioritization. The next steps would be to conduct detailed corridor-level studies (i.e., alternatives analyses / draft environmental impact statement) for the high priority corridors.

TABLE 5-11

PROMISING ARTERIAL BUS RAPID TRANSIT PROJECTS

Project Corridor	From	To
Buford Highway	Pleasant Hill Road	Lindbergh MARTA Station
Clairmont Rd./ C-Loop Corridor	Decatur MARTA Station	Lindbergh MARTA Station via Emory University
Campbellton Road	Camp Creek Parkway	Oakland City MARTA Station
Camp Creek Pkwy/Thornton Road	I-85 South	I-20 West
Candler Road	Decatur MARTA Station	I-285
Downtown / Atlantic Station	Five Points, Omni, Centennial Park, GA. Tech., Atlantic Station	
Fulton Industrial Blvd.	Campbellton Rd.	I-20 West
Johnson Ferry Rd / Abernathy Rd	SR 120 Roswell Road	Sandy Springs MARTA Station
LaVista Road/ Lawrenceville Hwy.	Lindbergh MARTA Station	Jimmy Carter Blvd.
Memorial Drive	Stone Mountain	Garnett MARTA Station
Moreland Ave. / Briarcliff Road	I-285 South	North Druid Hills Road
Peachtree Road Peachtree St.	Chamblee MARTA Station	Downtown Atlanta
Piedmont Road / Roswell Road	Alpharetta	Lindbergh MARTA Station
Scott Blvd. / Ponce de Leon Ave.	North Druid Hills Road	North Ave. MARTA Station
SR 92 / SR 140	I-75 North	Stone Mountain
SR 120/State Bridge/ Pleasant Hill/Satellite/ Duluth Hwy.	Marietta	Lawrenceville
Tara Boulevard	I-75 South	Lovejoy
US 78 Stone Mountain Hwy.	Rockbridge Road	Snellville

5.3.5 Other Fixed Guideway Transit Projects

Based on the extensive public involvement activities, the **Transit Needs Assessment** and a comprehensive search of previous transportation studies and proposals, more than 50 potential fixed guideway transit corridors were identified in the 13-county region. These potential corridors covered all areas of the region and every major freeway corridor.

After the initial identification of potential fixed guideway projects, GRTA presented the project information to the RTAP Project Advisory Committee. Project profiles were developed for each potential project that identified the physical characteristics, service characteristics, order-of-magnitude capital cost estimates and performance measures.

The project profile data provided to the Project Advisory Committee represents an initial assessment of the physical, service, capital cost and performance measures associated with each project. The level of technical analysis used to estimate this data is appropriate for this "systems-level" planning study. That

is, alignments and station locations have been approximated; further refinement of each would be the subject of ensuing project development phases (e.g., alternatives analysis, preliminary engineering, environmental impact statement, final design).

Capital costs have been estimated using order-of-magnitude unit costs for comparable projects; cost estimates would be refined in ensuing project phases. Finally, the ridership estimates have been developed using the sketch planning tool developed for the RTAP project; projections developed using the regional travel demand model will vary due to differences in model structure (e.g., the highway network is static in the sketch planning model), mode choice algorithms, and base transit network assumptions.

Promising High and Medium Capacity Projects

GRTA and the RTAP Team evaluated more than 50 proposed fixed guideway projects proposed by the PAC, other planning planners, and the public during the RTAP Open Houses. After reviewing the preliminary results with the PAC, several iterations were performed – adding new projects and testing several potential projects as a higher or lower capacity (e.g., some high capacity projects were tested as medium capacity projects).

After reviewing the results, all of the initial high capacity projects had a higher cost-effectiveness when tested as medium capacity projects. Projected ridership was lower for projects tested as medium capacity (due to longer headways and an additional transfer to the MARTA rail system), but capital costs were significantly lower. Based on an evaluation of the cost-effectiveness (annualized capital cost per passenger trip) of each project, it was evident that the medium capacity projects (e.g., bus rapid transit) were far more cost-effective than the far more costly high capacity projects. This led to the development of the BRT Plan as the centerpiece of the fixed guideway element of this Plan.

In addition to the seven high-speed BRT corridors and eighteen arterial BRT projects (Section 5.3.4), the Draft Concept Plan has identified the proposed Belt Line project including a link to the Emory/Clifton Road corridor (between Emory and MARTA's Lindbergh Station) and circulator systems in seven regional activity centers as potential medium capacity projects (BRT or light rail transit).

The next phase of project development would be a corridor-level alternatives analysis. At this stage, each potential project would be refined and a locally preferred alternative (LPA) selected. While this analysis does not support any of these corridors as high capacity projects, the Draft Concept Plan does not preclude the future study of high capacity options.

Intercity & Commuter Rail Projects

An independent assessment of proposed intercity and commuter rail projects was not conducted because the RTAP sketch planning tool was unable to forecast accurately ridership for those intercity and commuter rail corridors that lie outside the 13-county non-attainment area.

The Georgia Department of Transportation (GDOT) and Georgia Rail Passenger Authority (GRPA) have conducted feasibility studies of intercity and commuter rail in Georgia. In 1995, GDOT sponsored a study of 12 potential commuter rail corridors in the greater Atlanta region. Seven of the commuter rail lines were determined to be feasible: Macon, Athens, Senoia, Bremen, Madison, Gainesville, and Canton (Source: ***Commuter Rail Plan Final Report***, GDOT, September 1995).

An Environmental Impact Statement (EIS) was completed for the Macon-Atlanta line and a finding of No Significant Impact (FONSI) has been obtained from FTA (December 2001). This project is now eligible for federal funding. The 104-mile Macon-Atlanta line is expected to cost $326 million (2000 dollars) and is projected to carry over 7,200 riders each weekday in the year 2025.

An Environmental Assessment (EA) has been completed for the Athens-Atlanta line (January 2003). The EA will allow FTA to determine whether the project is eligible for federal funds for the next phase of project development. The 72-mile Athens-Atlanta line is expected to cost $378 million (2000 dollars) and is projected to carry 9,000 riders each weekday.

Project planning for the other five intercity/commuter rail corridors is now being updated by a Project Management Team (PMT) composed of GDOT, GRPA and GRTA. The PMT is expected to include some or all of these intercity/commuter rail corridors in the statewide transportation plan. Planning and implementation of the statewide transportation plan is the responsibility of GDOT. GRTA will coordinate the Regional Transit Action Plan with GDOT, GRPA and other planning partners as necessary.

Promising Regional Activity Center Circulator Projects

Years ago, downtown Atlanta was the primary activity and employment center in the Atlanta region. In the past 30 years, though, other regional activity centers have developed – some in the urban core and others in suburban settings. As a result, while downtown Atlanta is still the largest total employer in the region, its share of the total employment base has been steadily decreasing. The Atlanta Regional Commission has identified 10 regional activity centers: City Center (downtown Atlanta), Cumberland/Galleria, Hartsfield Atlanta International Airport, Midtown Atlanta, Perimeter Center, Glenridge Medical Center, Lenox/Phipps, Peachtree Corners, Gwinnett Place, and Buckhead.

Because of the increasing importance of these regional activity centers, both as employment and commercial centers, providing transit connections to and between these centers is essential. The Draft Concept Plan recognizes the need to provide high level transit service within these activity centers, both as a means of distributing transit trips to/from the regional transit system and as a circulator for trips within the activity center.

Following is a list of seven regional activity centers where some form of fixed guideway transit service may be feasible. (It should be noted that downtown Atlanta and Midtown have also been proposed to be connected by an arterial BRT project.)

- Buckhead
- Perimeter Center
- Cumberland / Galleria
- Town Center Mall
- Hartsfield International Airport
- Gwinnett Place Mall
- Emory / Clifton Road

5.3.6 Fares & Fare Policy

Fare policy applies to all aspects of fare strategy development, pricing, and selection of fare collection and payment methods. Fare policy directly affects ridership and revenue. As a primary

goal, the RTAP fare strategy and pricing levels should be established that achieve an acceptable level of cost-effectiveness related to providing the transit services. That is, the fares should provide an acceptable farebox recovery ratio (passenger revenue ÷ operating costs), and the costs associated with fare collection functions should be minimized.

From a customer standpoint, the fare structure should be easy to understand and use. The process of purchasing fare media should provide the customer with a broad array of options beyond traditional fare media outlets such as transit service centers and stations. For example, advances in fare media technology are now allowing customers to purchase fare media directly at the bus farebox, the Internet, and through retail outlets and employers partnered with the transit agency.

As stated earlier, there is a clear need to provide a fully integrated transit system for the entire Atlanta region. Regional fare integration or the ability to use a single fare card on multiple transit operators in the region is a key part of providing seamless regional transit travel. The concept of regional fare integration is to make transit more attractive both to people who have to use more than one operator's service and to those who would make greater use of transit in the region if it were more convenient. The electronic smart card technology has emerged as an effective and convenient fare media for meeting the demands and needs of a regionally integrated fare collection system. The smart card has an imbedded integrated circuit (or chip) with an on-board microprocessor and built-in logic that has memory, processing, and security capabilities.

The flexibility and information storage capability of smart card fare systems offer the opportunity for increased regional transit integration:

- Smart card fare media can serve as passes or fare cards for multiple operators. This increases attractiveness to customers and results in increased market penetration.

- In addition to institutionalizing seamless regional transit travel, the memory and processing capability of smart cards can enable individual operators to retain their own fare structures.

- The accurate transaction record of smart cards enables revenues to be accurately reported for the various transit operators. The capabilities of the fare systems allow a regional clearinghouse to promote equity and timeliness in revenue distribution across multiple operators.

Smart cards offer potential for additional supporting policies which can drive market penetration and provide customer benefits such as:

- Durability of fare media,
- Convenience and reduced need to carry cash,
- Automatic load (e.g., credit/debit cards, automatic payment transfers from employers),
- Balance protection, and
- Lowest fare guarantee and other loyalty programs.

Focus groups in Washington and Baltimore indicate that lower income individuals also perceive the same significant benefits in smart cards as higher income riders.

There are a growing number of regions in the U.S. that are implementing smart card fare collection systems. The largest application is in Washington, D.C. where over 250,000 smart cards are in use. Los Angeles and San Diego are scheduled for regional revenue service with smart cards by 2005. Transit operators in San Francisco, Seattle, and Chicago are currently evaluating smart cards with demonstration projects.

Internationally, transit smart card systems have been implemented in London, Hong Kong, Singapore, and Seoul.

In early 2000, MARTA began the procurement of a completely new automatic fare collection system that will replace tokens with stored value cards and smart card technology. The new system will establish an integrated system to collect rail and bus fares and parking fees and process the revenue. The system will handle cash, commercial credit and debit cards, and electronic media specific to MARTA, and will be capable of handling MARTA's present flat fare, or a zone fare system, or a distance fare system, and a variety of discounted and special fares. It is anticipated that the smart cards can be the basis for an integrated regional fare structure. However, the new MARTA fare system will not be fully implemented for three to five years.

Therefore, GRTA must design interim fare policies and collection/payment methods for the regional express bus system which will begin operation in 2003. GRTA's vision is to design and implement a regional pass program where riders would have the option of using a monthly pass for unlimited travel on any of the systems in the region. Riders on multiple systems would not have to carry extra cash or purchase additional transit fare media, and the added simplicity and convenience is envisioned to encourage hundreds of other commuters to try public transit. A similar program, called the Regional EZpass, was put in place in the Los Angeles region in August 2002. The Regional EZpass is being marketed as the first major phase toward a universal fare system as their smart card technology is being implemented.

For the long term, GRTA's vision is to build on the smart card platform currently being procured by MARTA and to expand that technology across the region's multiple operators. Implementing a smart card fare collection system for the Atlanta region carries with it extensive requirements, from both a technical and institutional point of view. Perhaps the most difficult issues are the institutional ones associated with the operational and administrative issues. The planning and development must address a range of complex issues and can, therefore, take several years. In the Los Angeles region, a Universal Fare System (UFS) Money Committee, and associated subcommittee structure, has been created to develop an interagency revenue allocation and distribution methodology and agreements, as well as alternative approaches for implementing UFS service functions. GRTA will need to begin addressing the institutional issues to put the regional structure in place once MARTA selects their AFC smart card system.

5.3.7 Customer Amenities

Market research studies of transit users and non-users alike have shown that the perception of attractive, convenient and safe customer facilities is an essential element of the overall transit experience. Too often, transit planners and engineers design "bare bones" customer amenities in an effort to reduce the overall cost of constructing a project or operating a service. And in some cases, particularly in suburban settings, even the most basic customer amenities like pedestrian sidewalks and crosswalks are not available. A lack of customer amenities tends to discourage transit use by "able" persons who could readily benefit from the service and makes transit virtually inaccessible to many disabled persons who may be unable to negotiate access to/from bus stops or rail stations.

Simply put, customer amenities should be provided so that:

1. transit stops/ stations are situated in convenient and safe locations,

2. passengers can get to/ from transit stops safely,

3. once at a stop, passengers should find a safe, comfortable waiting area, and

4. then board a clean, safe, reliable bus or train.

Characteristics of customer amenities standard to transit systems are described in detailed in the following paragraphs.

Sidewalks

Sidewalks are an integral part of the transportation system. All of us are pedestrians at some point in our daily journeys. The Americans with Disabilities Act (ADA) has clear definitions of the minimum allowable widths of sidewalks in order to accommodate citizens in wheelchairs. In residential areas, sidewalks should be a minimum of five feet wide. This is adequate for two people walking abreast. In commercial areas, sidewalks should be between five and 10 feet wide, depending on pedestrian volumes. In some instances the sidewalk should be wider, depending on the characteristics of pedestrian volumes and pedestrian travel in those specific areas. *It is highly desirable that sidewalks should be provided in all neighborhoods that are or will be served by fixed route transit service.*

Waiting Pad

The waiting pad is the area at a transit stop or station where passengers access and egress the bus or train. It is recommended that all new or improved transit stops have waiting pads in order to provide all passengers with safe access to the transit vehicle. Amenities (such as trash cans and benches) can also be located on the waiting pad. The size of the pad depends on several factors, including: size of vehicle, expected number of passengers, amenities desired at the stop or station, and clearance for street furniture and wheelchairs.

It is also important to include a wheelchair landing area that is free of obstructions. In addition, it is desirable to maintain clearance on sidewalks to maintain pedestrian flow. The slope of the pad should be 2 percent or more to facilitate adequate drainage but may not exceed 8.33 percent or 1:12 (one foot of vertical change for 12 feet of horizontal change) to meet ADA standards. Shelters must have at least a two-foot setback from the roadway (MARTA requires a 10-foot setback).

Seating

Seating provides comfort and convenience at stops and stations. Benches are usually installed on the basis of existing or projected ridership. In addition, other criteria include locations with long wait time between vehicles, locations frequently used by elderly or disabled passengers, and locations where there is evidence that patrons are sitting or standing on nearby land or structures. Benches should also be located in well-lit areas, away from driveways, and on a well-drained concrete foundation. The bench should be separated by a minimum of 2.5 feet (four feet desired) from the back of curb (farther as the traffic speed of the adjacent road increases). MARTA has established criteria for assisting in selecting where benches should be located based on the average number of patrons (seven) that wait at a bus stop.

Lighting

Lighting at transit stops provides security to waiting passengers. Transit stops and stations should be located in an area with adequate lighting. If there is no adequate lighting, the developer and/ or the transit provider should work with the local jurisdiction to have additional lighting provided.

Shelter

Shelter is important consideration in the Atlanta climate. Waiting passengers need to be protected from heat, rain, direct sun and wind. Shelters should be placed at all transit centers, stops and stations. Shelters for bus stops should be considered on a case-by-case basis. For example, MARTA considers constructing shelters at bus stops with more than daily boardings.

Shelter design is important as well. Adequate ventilation should be provided, and the shelter roof should be large enough to provide cover from rain and direct sun. Consideration should be made as to the orientation of the shelter. An east-west orientation can be uncomfortable in the summertime, particularly with a summer afternoon sun shining directly into a shelter.

Other Amenities

In addition to the basic amenities such as signage, sidewalks, benches, lighting and shelters, there are other amenities that are often used to make the transit stops more comfortable and functional. Customer amenities are typically a function of the demand or usage of the transit facility. For example, greater amenities should be provided at rail transit stations than at local neighborhood bus stops. Amenities may include a waiting pad, shelter, seating, news vending, restroom facilities and bicycle storage. Amenities at higher service level facilities such as rail stations and park & ride lots could include bus bays for routes that serve the station or lot and vendor-supplied services (such as day care, coffee shops, dry cleaning, and postal service). Table 5-12 lists proposed customer amenities that GRTA has identified as desirable for park & ride lots developed in support of its regional express bus program.

TABLE 5-12. PROPOSED CUSTOMER AMENITIES AT GRTA EXPRESS BUS PARK & RIDE LOTS

	GRTA Park and Ride Facilities		
Customer Amenities	**Essential**	**Optional**	**Regional Transfer Centers**
Lighting	**XX**		
Bicycle Racks	**XX**		
Pedestrian Sidewalks, Bike Paths	**XX**		
Landscaping	**XX**		
ADA Accessibility/ Handicapped Parking	**XX**		
Kiss-and-Ride Parking Area	**XX**		
Sheltered Waiting Area/ Bench Seating	**XX**		
Written Passenger/ Routing Info	**XX**		
Trash Receptacle	**XX**		
Drive-Thru Security Patrol by Local Jurisdiction	**XX**		
Security Features- Distress Box, CCTV	**XX**		
Water Fountain		**XX**	
Public Telephone		**XX**	
Public Art		**XX**	
Real-Time Arrival Info		**XX**	
Newspaper Box		**XX**	
Waiting Room Building/ Indoor Waiting Area			**XX**
Vending Kiosk/ Machine			**XX**
Coffee Shop/ Retail joint Use			**XX**
Convenience Store			**XX**
ATM			**XX**
Play/ Recreation Area			**XX**
Daycare			**XX**
Operator Restrooms	TBD		

The importance of customer amenities has been widely demonstrated both in market research studies as well as actual practice. Well conceived, designed and operated projects that feature safe, convenient and attractive customer amenities are successful in generating transit ridership. The GRTA vision is to develop customer amenities that encourage a high level of transit use for each of its transit services and projects implemented in the Atlanta region.

5.3.8 Intelligent Transportation Systems

More and more transit agencies are turning to new technologies -- such as high speed communications, data processing and satellite positioning – to improve the performance of their operations. These new technologies, referred to as Intelligent Transportation Systems (ITS), involve the integration of several information and control technologies to enhance mobility, energy efficiency, and environmental protection. ITS has been found to be effective in promoting transit services to current and potential transit patrons.

One method for improving transit operations in the Atlanta Region is the implementation of ITS technologies to provide real time, accurate information on transit vehicle location, passenger usage and vehicle status to transit system managers. Improving the performance of transit services will require policies that give priority to transit operations and provide for investment in crucial system components. Some of the important infrastructure components that will benefit transit include: separating bus operations from general-purpose traffic; facilities that provide for increased comfort and system visibility; and technology that provides for faster and more reliable operations. New guidance, information, and fare technologies offer an expanded range of possibilities for operating transit systems. Such systems have the potential to produce marked improvements in performance and changing public perceptions of transit service.

GRTA's vision is to create an integrated transit program that coordinates transit operations, improves operating efficiencies, enhances transit system management capabilities, links transit agencies with traffic operations agencies, enhances safety and security, and provides regional, seamless, real time travel information services to the public.

Table 5-13 provides a recommended list of transit ITS projects for the Atlanta region.

TABLE 5-13. RECOMMENDED ITS PROJECTS

Project Name	Project Description
ITS Committee of Transit Operators	Create a committee of transit operators and planning partners to support and coordinate the development of intelligent transportation systems in the region.
Automatic Vehicle Location	Install AVL on all new transit buses to allow for vehicle tracking; retrofit existing buses as funds are available. This project, along with scheduling software, will provide enhanced bus scheduling capabilities.
Automatic Passenger Counters	Implement APC on new transit buses; retrofit existing buses as funds are available.
Electronic Fare Payment	Design and implement a regional electronic fare collection system for the region. MARTA's "Smart Card" procurement should be the basis for the regional system.
Geographic Information Systems	Develop GIS system for 13-county region to support the geo-location of fixed route bus stops on all transit systems.
Itinerary Trip Planning	Design and implement an automated trip itinerary planning system that enables the public convenient access to regional transit information through the telephone system and the Internet.
Archived Data	Design and implement a system to archive facility, service, financial and performance data that can be readily accessed by planning partners and transit agencies.
BRT Smart Corridor	Develop a *BRT Smart Corridor* demonstration project that will provide a prototype for the transit signal priority system, multi-modal coordination and traveler information elements.
Real-time Traveler Information	Provide transit users at transit stops and on-board transit vehicles with ready access to transit information including transit stop annunciation, imminent arrival signs, and real-time transit schedule displays.
Multi-modal Coordination	Establish two-way communications between transit and traffic agencies and between transit agencies to improve service coordination. Integration with GDOT's *NaviGAtor* is recommended.
Transit Priority	Upgrade traffic signal system to enable transit vehicles to receive signal priority on major roadways. Intelligent priority systems can provide priority for buses behind schedule or that are near capacity.
Security	Implement in-vehicle video cameras onboard transit vehicles and facilities to provide increased driver and passenger security.
511 Traveler Information	Develop a regional 511 phone based traveler information system.
Transit Maintenance Information	Develop transit vehicle information systems to support vehicle maintenance functions.

5.3.9 Transit Oriented Development

Transit oriented development (TOD) refers to pedestrian-friendly land development activities that are built within easy walking distance of transit. TODs generally include a compact mix of different land uses that are oriented to promote pedestrian activity and improve connectivity between neighborhoods. TODs also support the concept of livable communities where neighborhoods include a range of housing options, jobs, commercial services, and recreational opportunities all within easy access of transit services.

In order for transit to be successful, transit and land use planning and design must be coordinated. Local municipalities as well as private developers, landowners, and communities all play a role in assuring that land use decisions are coordinated with transit investment decisions. In the Atlanta Region the majority of local plans, policies and processes do not allow for or encourage transit oriented development. Likewise, incentives do not exist to encourage developers and the private sector to create mixed-use developments that will create a strong transit market, while decreasing the need for auto travel. Historically, most municipal and county plans allow for and, in fact, encourage low density, auto dominated development patterns that are not conducive to transit. The result, too often, is low density, dispersed, and poorly connected communities.

The Atlanta region has a unique opportunity to chart a direction for significant regional mobility and land development that encompasses transit oriented development. The RTAP serves as a catalyst for citizens, municipal and county governments, transit providers, regional agencies and the state government to work cooperatively in creating a coordinated program that maximizes the effective utilization of economic, transportation and land resources. The RTAP provides a framework whereby transportation and land use decisions can be coordinated and the

quality of life and economic viability in the Atlanta Region is enhanced.

The transit program described in the Draft Concept Plan relies heavily on the participation of municipalities and counties to guide transit oriented development in those corridors and activity centers defined in the plan. GRTA recognizes that TOD is not appropriate for all areas of the region; some areas will continue to support and develop low density land uses. However, in defined transit corridors, the development patterns envisioned (e.g., mixed use development, compact urban growth, infill development, activity center development) may require changes in zoning codes, land development codes, development approval processes, subdivision ordinances and comprehensive plan policies. Future transit investments should be directed to those parts of the regions, those corridors and those jurisdictions that demonstrate a willingness to encourage transit oriented development.

In order to assist in the coordination of sustainable land use development and transit, GRTA should partner with the municipal, county, regional and state governments in developing a TOD toolbox, model comprehensive plan transportation and land use elements, and a model land development code. Local and county governments can then use these model guidelines to direct development consistent with the transit program defined in this Draft Concept Plan.

Transit Oriented Development Toolbox

Transit can be most effective when integrated within a broader planning framework encompassing land use policies, zoning regulations, and economic and community development. An important element in transit's long-term success is the urban area's ability to adapt to constantly changing market demands. Those areas that currently contain, or are planned to contain, traditional development with a well connected grid street network, appropriate building scale and orientation, will best complement transit. Furthermore, those locations that have a mix of land use increase the attractiveness of the area and increases trip options for transit users. Allowing more intense uses adjacent to transit corridors will increase transit ridership and attract new development along the transit corridor. Transit, and in particular, fixed guideway transit such as heavy rail, light rail and bus rapid transit, has the potential to influence land development patterns. The clustering of development has the additional benefit of conserving land and promoting the vitality of neighborhoods and urban commercial centers.

TODs have as a feature transit-friendly design. Transit-friendly design is a term that describes a variety of tools that maximize the access, safety, and convenience of a transit system. For example, transit-friendly design can include:

- Pedestrian accessibility to transit stops, including simple and affordable items like sidewalks and protected crosswalks.
- Passenger comfort at transit stops, including adequate shelter, seating, and other amenities.
- Passenger safety at transit stops, including lighting, information, and visibility.
- Bicycle access to the transit system, along with appropriate storage or transportation of bicycles.
- Accessibility for passengers with wheelchairs or other mobility aids, meeting the requirements of the Americans with Disabilities Act.

- Orientation of new buildings and developments to have front doors close to bus stops, minimizing long walks through large parking lots for transit riders.

- Street networks that are connected in a way that minimizes "detours" from direct routes, thereby maximizing the ability of the transit operator to effectively and efficiently operate its system.

- Well-connected network of streets or grid network that also provides pedestrians and transit patrons with shorter walking distances to transit stops.

- Curb radii that can be negotiated by buses.

- Medium to high density land uses that can generate the volume of transit trips needed to support the desired level of efficiency of the transit system.

In the toolbox, TOD will be covered in three sections. First, the toolbox will provide an overview of TOD and the contemporary land use issues that affect communities and their transportation systems. In addition, there will be a description of many of the benefits of developing in a transit-friendly manner. Second, the toolbox will provide a comprehensive description of the design characteristics of transit oriented development. The intent of the toolbox is to present general, not rigid, design guidelines, recognizing that each future development project, as well as each area within the region, has unique characteristics and development constraints. Finally, the toolbox will provide a description of the many tools available to make TOD happen within these communities.

Model Comprehensive Plan Transportation and Land Use Elements

Land use plans and regulations should be modified to encourage transit oriented development. Comprehensive plans should take a strong position on the role of transit in a community. The comprehensive plan should establish the patterns of development by defining the community's development corridors, activity centers and neighborhoods. The comprehensive plan should direct higher density development to identified activity centers along planned transit corridors. The comprehensive plan should establish the vision, create buy-in and build consensus for an area.

As a result of the RTAP, GRTA will work with the transit operators and the municipal and county governments carefully to craft comprehensive plans that prescribe the needs of a community, but permit flexibility in the eventual realization of the plan. GRTA shall assist by developing model comprehensive plan-transportation and land use elements to assist the governments in creating exciting, economically viable, sustainable and transit friendly comprehensive plans.

Model Land Development Code

Local governments can create strong incentives for private sector investment by improving development approval processes and creating plans and development codes that incorporate community needs, private and public sector capabilities and TOD techniques. The local zoning and land development codes should be used to implement and enable the sustainable, transit friendly comprehensive plans. Currently, outside the urbanized central core of the region, most municipal zoning codes do not permit the type of development required to support transit. Many of the parking requirements, setback requirements and density

limits create development patterns that weaken transit markets and encourage auto use.

As a natural outcome of the toolbox and comprehensive planning efforts, GRTA will work with the transit operators and local and county governments to develop model zoning codes, complete with TOD design guidelines throughout the region.

5.3.10 Transit Planning and Implementation Tools

One of GRTA's functions is the provision of technical support for each of the counties and/ or transit agencies in the region. GRTA staff has or will have the technical expertise available to support and coordinate technical work activities conducted by each of the counties and/ or transit agencies. As a technical support resource, GRTA can help local counties and/ or transit agencies reduce their administrative and overhead costs. At the same time, GRTA will be providing continuity and coordination amongst the agencies that will lead to greater cost efficiencies and better service integration.

Another important function that GRTA has assumed is oversight and monitoring of transit activities by local jurisdictions and transit agencies. This oversight function is essential if the services and policies of each transit agency are to be woven into a seamless, integrated regional transit system. Oversight and monitoring functions include:

- **Reporting requirements**. All local transit agencies should make annual reports to GRTA on key aspects of their transit programs, including financial, performance, operations, and maintenance data. The reporting requirements should be coordinated with those of FTA's National Transit Database and GDOT's annual reports, so that local transit agencies do not have to duplicate reporting requirements.
- **Fare policy**. As described above, GRTA should take a lead role in establishing a regional fare program that does not discourage travel across transit modes or jurisdictions.
- **Service levels**. How much service is enough? That is a critical question that GRTA and each of the transit agencies in the Atlanta region need to address. GRTA should establish overall goals for service levels in each jurisdiction (e.g., annual service hours per capita). These goals could be reviewed annually with a committee of the transit agencies and modified to reflect performance.
- **Coordination of service**. Currently, the various transit agencies have negotiated working agreements to coordinate services. GRTA should develop a model service integration plan/agreement that provides a common basis for each agency to plan and implement service in concert with other agencies.
- **Performance standards**. GRTA should develop performance standards that can be used by all the transit agencies to guide the evaluation of fixed route services. These standards should address effectiveness (e.g., riders per unit of service), efficiency (e.g., cost per unit of service, cost per rider) and coverage (unit of service per capita). Unique standards should be developed for distinct service types (e.g., local, express, circulator, crosstown) and service areas (e.g., urban, suburban, exurban).
- **Transit Development Plans**. GRTA should require each county/transit agency to develop a Transit Development Plan (TDP) that describes existing and future service plans for a three to five year period. GRTA should provide an outline or template that describes minimum contents of the TDP.

5.3.11. Transportation Demand Management

Transportation demand management (TDM) includes any strategy that makes the existing transportation system more efficient without building more general purpose lanes of roadway. TDM strategies, described below, include alternative modes, TDM support programs and organizations, work trip (employer) programs, non-work trip strategies, land use and community design concepts, and public education and awareness.

Alternative Modes

- Expansion of sidewalk and bicycle/pedestrian program
- HOV priority parking
- Private transit shuttles
- Incentives/subsidies to use transit
- GRTA's regional vanpool program
- Vanpool subsidy incentives
- Non-traditional bus operations (e.g., route deviation, subscription routes)
- Guaranteed ride home program
- Paratransit services (e.g., general public demand response, subsidized taxi)
- Discounted fare programs
- Universal transit pass

TDM Support Programs and Organizations

TDM in the Atlanta region is overseen by a federation of organizations such as the ARC's Commute Connections, the Atlanta region's Transportation Management Associations (TMAs), and the Clean Air Campaign. These organizations coordinate employer-based TDM programs that include transit, vanpool, and carpool service.

The number of TMAs could be expanded in congested corridors and emerging activity centers. Jurisdictions could work together to identify these corridors and activity centers with congestion problems. Special comprehensive plan policies and congestion management plans would identify strategies to reduce congestion by reducing the number of trips made in the corridor.

Work Trip (Employer) Programs

Work trip programs could be supported by the TMAs, other local governments, and public/ private partnerships.

- Variable work hour programs (e.g., flex-time, compressed work week)
- Staggered work hours in highly congested corridors and subareas
- Preferred parking for carpools and vanpools
- Employee transit fare subsidy
- Telecommuting technical assistance
- Develop and support regional network of telework centers

Non-Work Trip Strategies

Another important challenge for TDM is in reducing the growing number of non-work trips. Travel for purposes other than work account for over 75 percent of all trips. In comparison to work commutes, non-work trips are less likely to be by SOV or bus, and more likely to be by carpool; shorter in-time duration; and shorter in distance averaging half the distance of a work trip.

Vehicle occupancy is already high for many of these trips, and travelers value the freedom that comes with driving their cars. GRTA and the local TMAs should research non-work trip markets (e.g., shopping, youth, elderly, recreational, entertainment, sporting and special events) and develop an understanding of the potential for influencing those trips with TDM strategies. Potential non-work trip strategies include:

- Shuttle services in major activity centers
- Off-peak transit fares or other discount pricing such as unlimited-use single day passes
- Deeply-discounted transit fares for students, youth and the elderly
- Ridematching support and innovative transit services for vocational and university students
- Parking management programs (supply and cost) in major activity centers
- Community-based rideshare programs
- Manage freight movement in ways that avoid conflict with autos
- Consolidate, where feasible, non-commute business travel (e.g., delivery services, sales and service calls)
- Explore ways of including special event transportation in the event's design and price

Land Use and Community Design Concepts

There is an opportunity to increase the use of transportation alternatives through land use decisions and choice of design characteristics. Providing community-based clusters of mixed-use development to closely satisfy trip desires is crucial for reducing SOV trips. However, there is no discernible change in SOV trip rates until a relatively high-density threshold is reached. Thus, strategies should not be simply towards increasing density and mixed use, but towards community centers and villages with adequate access, neighborhood design and amenities. For example, current suburban forms impede walking, biking and the use of transit. This is due to design factors such as fewer sidewalks, bigger blocks, fewer through streets and indirect routing. Potential TDM-supportive strategies include:

- Concentrate future growth in existing community centers and clusters
- Minimize suburban-form growth
- Channel new high density construction away from existing single-family neighborhoods to preserve choices for home buyers
- Concentrate on developing access and amenities – improve access to areas where growth is desired and create amenities like parks and main street shopping to attract people and businesses
- Locate new civic institutions (e.g., libraries, schools, parks) in central community locations with access to transit and pedestrian amenities
- Require or give incentives for developments to incorporate open space, grid-patterned streets, connecting streets, cross-access easements, and site design and amenities for pedestrian, bicycle and transit access

Public Education and Awareness

Convincing people to change their travel behavior is essential to making TDM work. Marketing and education campaigns should be an integral element as new SOV travel alternatives and other TDM services and strategies are made available. The various campaigns should be effectively coordinated among their

sponsors to deliver consistent messages to their audiences regarding the benefits of alternative modes of travel and TDM.

- Develop a list of key audiences for public awareness strategies and activities,
- Develop specific strategies, techniques, and activities to appeal to each audience group,
- Establish a continuing TDM education and awareness function within GRTA, and
- Develop incentive programs and promotions.

It will take a variety of complementary TDM strategies to influence people's travel decisions. Alternatives to driving alone must be provided – and they must have the ability to compete with the SOV in meeting travel needs. TDM program successes are multiplied when travelers are provided with incentives such as a time or cost advantage.